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Master's Thesis  
Academic Year 2017

Pick Your Organic Mart:  
A New Retailing and Shopping Experiences for  
Urbanites

Keio University Graduate School of Media Design

Saran Assavaniwest

A Master's Thesis  
submitted to Keio University Graduate School of Media Design  
in partial fulfillment of the requirements for the degree of  
MASTER of Media Design

Saran Assavaniwest

Thesis Committee:

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Abstract of Master's Thesis of Academic Year 2017

Pick Your Organic Mart:  
A New Retailing and Shopping Experiences for Urbanites

Category: Design

Summary

In the belief of urbanites buying vegetable, herbs and fruits should enjoy immersive and authentic shopping experiences and have the privilege to pick best qualities from the source. "Pick Your Organic Mart" concept, a medium that connect farmers and urbanites community together, to grow and directly sell edible plant in urban through in-store design and new shopping experiences inspired by "Pick Your Own" theme was design in this thesis. The purpose in this study, is to design feasible concept and in-store design, to particularly delivers new shopping experiences upon organic edible plant to urbanites. The test was conducted and result of the study will proof "Pick Your Own Mart" practicality in Bangkok Thailand.

Keywords:

Concept Design, Shopping Experience Design, Urbanites, Community, Pick Your Own, Organic

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Saran Assavaniwest



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# Table of Contents

<b>Acknowledgements</b>	<b>ii</b>
<b>1 Introduction</b>	<b>1</b>
1.1 Background . . . . .	1
1.2 Motivation . . . . .	1
1.2.1 Voices from Urbanites . . . . .	2
1.3 Purpose of study . . . . .	3
1.3.1 Research Method . . . . .	4
1.4 Expected Contribution . . . . .	4
1.5 Structure of Study . . . . .	5
<b>2 Related Works</b>	<b>6</b>
2.1 Rural Farm Transformation . . . . .	7
2.1.1 Agri-tourism . . . . .	7
2.1.2 Pick Your Own Produce . . . . .	7
2.1.3 Subscription Farm . . . . .	8
2.1.4 Market Garden . . . . .	8
2.1.5 Short Summary . . . . .	8
2.2 Urban Farm . . . . .	9
2.2.1 Community Garden . . . . .	9
2.2.2 The Farmery . . . . .	12
2.2.3 Short Summary . . . . .	13
2.3 Existing In-store Design . . . . .	14
2.3.1 Farmer market vs. Supermarket . . . . .	14
2.3.2 Bangkok Supermarket . . . . .	16
2.3.3 Short Summary . . . . .	18
<b>3 Concept</b>	<b>19</b>
3.1 What is Pick Your Organic Mart ? . . . . .	19
3.2 Philosophy: Urban Agriculture . . . . .	20

## TABLE OF CONTENTS

---

3.3	Vision: Alternative medium in urban food chain system . . . . .	21
3.4	Design Concept . . . . .	22
3.5	Special Attractions: Three Services . . . . .	23
3.5.1	Pick Your Menu . . . . .	23
3.5.2	Pick Your Salad . . . . .	24
3.5.3	Pick Your Edible Basket . . . . .	25
3.5.4	Contribution and Involvement . . . . .	27
3.5.5	Urbanite's System Flow . . . . .	29
3.6	Rapid Prototype . . . . .	30
3.6.1	In-store Design . . . . .	30
3.7	Pre-Test: Fieldwork . . . . .	33
3.7.1	Methodology . . . . .	33
3.7.2	Fieldwork Structure . . . . .	33
3.8	Result of Fieldwork . . . . .	37
3.8.1	Urbanite's Feedback . . . . .	37
3.8.2	Urban Farmer's Feedback . . . . .	43
3.8.3	Short Summary of Feedbacks . . . . .	47
3.9	Concept Summary . . . . .	48
<b>4</b>	<b>Evaluation</b>	<b>49</b>
4.1	Methodology . . . . .	49
4.1.1	Prototype . . . . .	49
4.2	Test Structure . . . . .	52
4.3	Test Result . . . . .	54
4.3.1	First Test . . . . .	54
4.3.2	Second Test . . . . .	57
4.3.3	Last test . . . . .	58
4.4	Summary . . . . .	61
<b>5</b>	<b>Result and Discussion</b>	<b>63</b>
5.1	Conclusion . . . . .	63
5.2	Design Limitation . . . . .	64
5.3	Future work . . . . .	64
	<b>References</b>	<b>66</b>

# List of Figures

2.1	Incredible Garden. Images Downloaded from [19] . . . . .	10
2.2	Artichoke Cafe. Images Download from [23] . . . . .	11
2.3	Rise Herb Garden. Image Downloaded from [14] . . . . .	12
2.4	The Farmery’s Virtual Store [13] . . . . .	13
2.5	Store layout. Images Downloaded from [29] . . . . .	15
2.6	Gourmet Market’s Layout . . . . .	17
2.7	Shelf Allocation . . . . .	18
3.1	Overall Concept . . . . .	22
3.2	Pick Your Menu . . . . .	23
3.3	Pick Your Salad . . . . .	24
3.4	Pick Your Edible Basket . . . . .	25
3.5	Utilize Urban Farmland in vacant urban areas . . . . .	27
3.6	Specialized produce to serve particular zone . . . . .	28
3.7	Creating Re-Visit . . . . .	29
3.8	Urbanite’s System Flow and Farmer Interaction . . . . .	30
3.9	In-store Design . . . . .	31
3.10	Display Content . . . . .	32
3.11	Fieldwork structure of both Urbanites and Urban Farmers . . . . .	34
3.12	Urbanite’s Interviewees of Fieldwork . . . . .	37
3.13	Urban Farmer’s Interview of Fieldwork . . . . .	43
3.14	Grandpa Urban Garden . . . . .	44
4.1	Prototype . . . . .	50
4.2	Shelf Level . . . . .	51
4.3	Toolkit for Three Services . . . . .	51
4.4	Test Structure . . . . .	52
4.5	Pamphlet about Three Services . . . . .	53
4.6	Test 1 . . . . .	54

LIST OF FIGURES

---

4.7	Test 1-1 . . . . .	56
4.8	Test 2 . . . . .	57
4.9	Test 3 . . . . .	58
4.10	Test 3-1 . . . . .	59
4.11	Test 3-2 . . . . .	60

# Chapter 1

## Introduction

### 1.1 Background

In today's urbanization world, urban sustainability is the key to the future. One important aspect of urban sustainability is the concept of urban areas being dependence, not relying on surrounding areas for basic necessities of food, water and energy [9]. Fundamentally, meeting the need of present generation and provide foundation for future generation to be able to also meet their needs. Around 1800, there were only 2 percent of the world population living in urban areas. In 1900 the number jumped up to 14 percent and in 1950 to 30 percent. In 2007, urban population crossed over 50 percent of world population [30].

In city, where large population of people living close to each other, one most important needs is food. However, rural land surrounding the areas are main reliable source for growing food for the people in city. Whereas, effects of climate changes and land irrigations causing food insecurity and under supply amongst the areas [24]. Moreover, the practices of packaging, transporting and distribution produces from surrounding areas bring conveniences but neglect urban sustainability. Instead, urbanites have to suffer from low quality, added-cost and waste. Relatively, the wise solution would be for urban areas being dependent by itself. Therefore, building an ecological footprint, to efficiently use urban land in city could be beneficial and sustainable.

### 1.2 Motivation

Imagine, living in urban areas with plantations of edible plants in every corners of urban areas. Not just offering green scenery and best micro-climate but importantly, fresh food. Rather than shopping at supermarket and judge quality of the food through marketing signage. Urbanites have the privilege to experience

farmer's story about their food and quality through shopping experiences. One solution idea is, "Pick Your Organic Mart" an outlet to shorten urban food supply chain by coordinating community of farmers and urbanites to directly grow and sell edible plants, in urban areas.

### 1.2.1 Voices from Urbanites

In belief of the initial idea being feasible, early stage of interviews are conducted. The purpose is to verify personal idea and gain confident from consensus with urbanites. Informal interviews are done through chat applications on smart phone called "LINE" with six urbanites both sex-oriented, living in Bangkok, Thailand. Most of the interviewees are first jobber age between 25 to 30 years old. Here are the valuable result's summary:

- Interesting to have edible garden nearby for cooking on weekends but don't want to spent more than 15 minutes harvesting.
- I can probably differentiate what vegetables and herbs but dont know exactly when they are ready to eat.
- I would have menu in my mind before I go to pick up ingredients from community edible garden.
- I dont trust vegetable and herbs from market because they arent fresh and maybe contain chemical

The results of interviews act as catalyst, to confidently build up concept to establish authentic and immersive shopping experience design with organic edible plant for urbanite's community. A glimpse of concept: The importance is to magnetize urbanites through three shopping experience, created in accordance to "Pick Your Own" theme. Also, supports from farmer's community to involve and contribute in urban areas are addressed, ensuring viable.

In detail, individuals can remotely check available produces through website, beforehand. On-site, users can choose amongst the three services into picking the edible plants. Community of farmers support the three services through growing in urban farmland, zoning and creating re-visit. Such as using surrounding vacant areas for growing and directly distribute ready to eat, organic edible plant through physical mart. In-store, farmers tell their background story and growing method

which build loyalty. Also combining with unique produce and menu suggestion from different zone, for urbanites re-visit.

Design prototype consist of in-store simulation and signage are created to clearly influences urbanites about "Pick Your Organic Mart" atmosphere and applications. The in-store simulation is created to show the virtual atmosphere and layout of the shop. The first floor are for retailing, urbanites are able to experience the services and harvest of edible plant. The second floor is for greenhouse, use to grow edible plant to supply the mart. The signage contain detail informations of the edible plant and the growers, to assist urbanites in choosing the right edible plants and combination best fit their preferences.

The physical prototype's is shelf structure which hold multiple quantities and type of edible plant. Each shelf level, contains signage identifying the quality of individual kind of edible plant with menu suggestions and health properties. Pick Your Organic Mart's physical prototype goal is for urbanites to have experience of three type of services of "Pick Your Menu", "Pick Your Salad" and "Pick Your Edible Garden".

### 1.3 Purpose of study

United Nations had proposed a new agenda consisting of 17 sustainable development goals to 169 targets and started implementing on 1st January 2016 [1]. One out of seventeen goals is "Sustainable Cities and Communities" to be accomplished in year of 2030.<sup>1</sup> Thailand member of United Nations is well-known of specialized, competitive and diversify agriculture. Bangkok as it's capital city is dense with approximately 15.6 millions people ranked 18 overall in "Largest Built-Up Urban Areas in the World" [8]. The result of non-stop increasing immigrations to Bangkok is higher demand of edible plants. Rural areas responsible for production, are using intensive agriculture method which used synthetic chemical, to serve the demand. Eventually, there are scarcity of "Organic" edible plant and proved to be prolonging [22].

The research aim to design concept corresponding to the current trend and problem. Through forging community of farmers into urban area to naturally grow and directly sell organic edible plant to urbanites. This is done through creation of new shopping experience with design in-store. Whereas, the evaluation

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<sup>1</sup> <http://www.un.org/sustainabledevelopment/cities/>



of this research builds on argument of implementing shopping experiences of Pick Your Organic Mart in Bangkok, Thailand. The objective are as follows:

- Persuade both community of urban farmers and urbanite in Bangkok about "Pick Your Organic Mart" concept being feasible.
- Deliver authentic and immersive shopping experiences that could support Bangkok urbanite's healthy eating habit.

From the objectives, the research goal is propose:

- Designing feasible concept and in-store design, to particularly delivers new shopping experiences upon organic edible plant to urbanites in Bangkok, Thailand

### 1.3.1 Research Method

To see if the research goal is achievable. Two phase test were conducted at neighborhood in Bangkok, Thailand. The pre-test was the fieldwork with both chosen urban farmers and urbanites. Through in-dept interviews, before and after explanation of concept in Bangkok, Thailand. Urbanites and urban farmers feedback were collected to see feasibility of "Pick Your Organic Mart" concept. Later, use hints from interview's feedback, to create physical prototype. The second test is physical prototype testing, it focuses on urbanite's experience through interaction and reaction with the real shelf and signage. The responses will demonstrates authentic and immersive shopping experience created, being feasible.

## 1.4 Expected Contribution

This research propose a new concept and store design, as an alternative medium to current urban food chain system and food retailing with new shopping experiences. Apart from the old paradigm of shopping experience at supermarket or grocery, to buy ingredients and food. "Pick Your Organic Mart" is new form of outlet by connecting community of farmer and urbanites together to provide new shopping experience, letting urbanites harvest their own produces. This are the expected contribution points:

- Provide 'Pick Your Own' theme in urban areas, consumers can eat directly from the source with nutritious and fresh quality.

- Consumers will receive authentic and immersive experience through harvesting when shopping.
- Consumers can select the best qualities and quantity from variety of naturally grown local produces by community of farmers.

## 1.5 Structure of Study

There are five chapters in this thesis paper. The first chapter explain a summary of the whole thesis, where motivation, purpose, method of study and contribution are briefly addressed. In chapter two, study of related work from existing research case and paper to find unique contribution to concept. Also, observation of supermarket in central Bangkok was conduct to receive real understanding of consumer behaviors. In chapter three, design concept focuses on urbanites is conduct. Also, in-store simulation and physical prototype with detail and signage are mention. In chapter four, the evaluation is separated into two test. The first is fieldwork, the structure and aim is discussed and it's an in-dept interview about feasibility of concept from both urban farmer and urbanites. The second is to physical prototype testing to find out about shopping experiences being authentic and immersive toward urbanites living in Bangkok, Thailand. Lastly, in chapter five the conclusion of evaluation result and future work is propose.

## Chapter 2

# Related Works

Urban area relies not only from agriculture surrounding but also international food chain because of development of transportation, internationalized agriculture market and mass retailing. Method of preservation like frozen, globalize local produces. In the food safety crisis of 20th century and untrustworthy of agri-product from international provider, in return development of alternative food chain occur. The global competition threatens survival of farmers. This make farmer re-create new niche market to form proximity with consumer and expect more profits [2].

One growing interest of alternative, both from farmers and consumer is direct farm to table experiences. Today, intense agriculture for maximum output to serve urban resident, shape farmers mindset to devote themselves to only what they do best. The process of planning, growing and harvesting food. Consequently, farmers relying on agribusiness middle men, for processing and marketing their products to numerous outlets. One dissatisfying factor from farmers is the low farm-gates price<sup>1</sup>. The actual price of what is being produce out of farm are just fraction of the retail prices. Therefore, by selling directly to consumers, farmers are escaping the added cost of transportation and marketing done by retail and wholesaler located in urban areas. Furthermore, increasing awareness of food safety, support growth of direct sale of organic produces. Consumers are favorable to deal directly with farmers, to ensure chemical-free growth method and organic quality [12]. From that preference, its an opportunity for farmers of rural farmland to search innovative direct sale methods. Therefore, exploration of currents diversification of farm to accomplish direct sales is discussed.

This chapter discussed past and current achievements made including services and research. To analyze and pinpoint out novel factors for realization of Pick Your Organic Mart's design concept and prototype. By doing so, completion of

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<sup>1</sup> Net price or value of product when it leaves farm

”Pick Your Organic Mart” is achieved.

## **2.1 Rural Farm Transformation**

In this section, talk about transformation of rural farms made, after competitiveness level amongst local produce are high. The struggles of survival by changing purpose and combining entertaining experience to promote direct sale value is discussed.

### **2.1.1 Agri-tourism**

Agri-tourism should be considered, as growing favorable immersive experience attracts customer to farm. There are several existing definition of agri-tourism and many related term used in literature. Agri-tourism contain both agricultural production and tourism characteristic. The main purpose is growing produces but adding feature of tourism to transform farm environment to product [20]. To encourage urban visitor to rural farm areas in short or long term stay for the purpose of leisure, education and recreational activities [31]. The motivation behind increasing growth of conjunction between farm and tourist is driven by supply and demand. On the supply, farms are facing economic pressure, where produce margins are dropping lead to fluctuating income, motivate farmer to seek diversification. On the demand side, increasing interest to support local farm and from people as a family travel to find activities. Activities such as corn-maze, hay riding, childrens educational program, petting zoo and more [4].

### **2.1.2 Pick Your Own Produce**

Examination of further types of direct sale is needed to discover possible unique value to adapt to the concept. One of interesting existing practices is ”Pick Your Own Produce”. It is an activity of agri-tourism, where the name already define itself. Farmers open specific area of land for entrance and consumer can personally choose and harvest from variety of produce. It beneficial for both farmers and consumers. Consumer with little expertise, could pick out vegetables and fruits with highest quality. As for farmers, there is reduction in cost because consumer is doing the harvest and the experience itself is marketing. The experience create intimacy with the edibles through enjoyment in harvest. Novelty of the concept

is achieved through transforming harvesting into shopping experience in urban retail.

### 2.1.3 Subscription Farm

Subscription farm specific to 'Rent-a-Tree' method allows customer beforehand to pay fee to subscribe farm production output in term of areas or quantity. Under farmer and consumer agreement, consumer can only harvest best quality vegetables and fruits from particular tree or section of farm. This make farmer focus on growing and let the consumer have harvesting experience [28].

### 2.1.4 Market Garden

Market garden, small rural scale farm or micro farms grows cash crop<sup>2</sup> such as vegetable, herbs and flower corresponding to demand of public. Generally, they have large variety of crop based on season, grown in traditional method and harvest manually by farmers. Plant could be grown both indoor and outdoor such as green houses and produces are sold in farmer market, local grocery or restaurants [27].

### 2.1.5 Short Summary

Guaranteed fresh and organic quality with entertainment value by letting customer harvest in rural farms but it take long distance to travel there. The entertainment value from agri-tourism activities act as an incentive for consumer to visit and purchase fresh produce in farm areas. The experience from "Pick Your Own Produce" and subscription farm create intimacy with the edibles through enjoyment in harvest. The market garden factor of growing what public want as niche market pull out an interesting factor to add-on farm's purpose. Novelty of the concept is achieved through transforming harvesting into shopping experience in urban retails. In considering this value into the concept and shopping experience it could prove unique diversification.

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2 crop grown for profit rather than use for subsistence crop, grow for their own consumption

## 2.2 Urban Farm

In this section, exploration of existing urban farm is made. By doing so, clear understanding of purpose and trending functions of urban farm is acknowledge which is inspirational and adaptive.

### 2.2.1 Community Garden

A worldwide phenomenal so called "Community Garden" using urban agricultural practices. The definition vary according to the preferences of locals. It may be growing edible plant such as herbs and vegetable in vacant and not utilized land, for cheap price or even share. It may be growing non-edible like flowers for open spaces and green scenery. In USA, "Thirty percent of agricultural products in the country are produces within metropolitan areas" [25]. Still, this practice isnt all about reducing food insecurity but also uniting and fostering community. People living closely but unknown to each other, are becoming friend. They open workshops to share knowledge, share their crops, share green scenery and expand it to different areas of city. Consequently, economical growth and social equity, initiating growth of urban sustainability [11]. These are some more existing community garden around the world .

#### Incredible Garden

"Incredible Garden" (Figure 2.1), located at Todmorden, West Yorkshire in United Kingdom. They are community benefit society, where enthusiastic people learn and work together to locally grows to share crop for free. They grow it every in town from pathways near the road and stream. Even in front of the police station. People work pass-by can collect and join their non-profit group, to grow for others. The best part is there are edible crop everywhere in communal areas. Locals can pick what they want in any quantity. Still, it's not user-oriented designed, such as recommending what to harvest and when is it ready to eat [19].



Crop to share on pathway



Crop to share in front of police station



Crop to share near stream

Figure 2.1: Incredible Garden. Images Downloaded from [19]



Figure 2.2: Artichoke Cafe. Images Download from [23]

### Artichoke Cafe

Bjorn Low founder of "Artichoke Cafe" (Figure 2.2), at Singapore left his career in advertisement to do farming and agriculture. His edible garden is close to Bottletree park, where he set up his plot and operation. The inspiration come from old people farming vegetable, to reconnect with nature and relief from depression. Therefore, he was enlighten to reconnect urban people with natures, by bringing urbanite close with nature to promote commercially sustainable way. The first step he took is to create edible garden to support his cafe but in the future he would like to expand to hotels, restaurant, school and so fourth. The valuable point of his concept is to bring people living in elderly home whose keen, to grow and sell. Eventually expand urban farm across the city. His vision is to link community to grow and sell organic and stop urbanite relying on supermarket for life necessities. In adding on to his practice, credential farmers should aid novice farmers in growing. Also, growing more variety rather than just herbs, should be considered [23].





Figure 2.3: Rise Herb Garden. Image Downloaded from [14]

### Rise Herb Garden

"Rise Herb Garden" (Figure 2.3), located inside "Marina Bay Sands" at Singapore, serves dishes with the freshest ingredients. This is done by using edible plant grown in-house. In which help reduce food mile,<sup>3</sup> making the foods taste better and environmental friendly. The plant here are grown in naturalistic ways. One techniques called companion plant are used, where mutually benefits plant are grown near together. It can heighten the health of each other and reduce use of pesticide. Still, the edible garden is specifically to support restaurant, which aren't open publicly to urbanites to harvest. Therefore are design factor on user side is needed, to attract urbanites into using [14].

#### 2.2.2 The Farmery

"The Farmery" by Ben Greene consider user-oriented aspect being important to urban farming. Then consumers will have the most fresh possible quality. The goal is to reduce the journey of produce from rural farm to retail store in urban

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3 Carbon emission from food traveling from it source to the plate

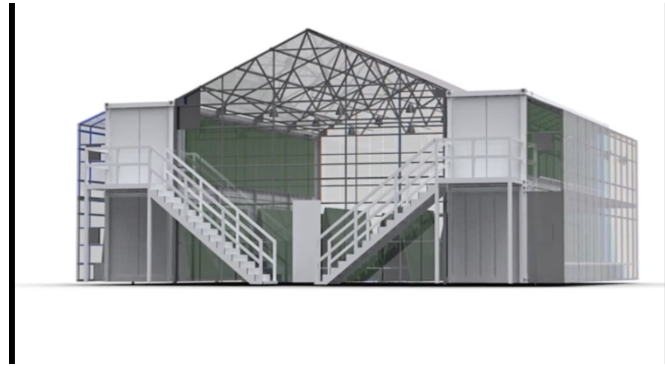


Figure 2.4: The Farmery's Virtual Store [13]

areas. His family own a unsuccessful small farm business at North Carolina, Polk's county. This motivates him to develop a new business that beneficial to small farm. The vision is to tighten the gap between farmer and consumer. The thought was to discard the transportation and distributing factors that customer care less about. Therefore, locating his farm in urban areas and adding retailing aspect make it possible to grow and sell at the same site.

The farm uses it second floor as a greenhouse (Figure 2.4), containing vertical hydroponic method and climate controlled to grow unqiues crop which priced higher. Also, varieties such as mushrooms and fruits. On the first floor, it's for retailing, customer will harvest edibles and have intimate experience with their food [13]. Further, catering was adding into the service, which the menu cooked uses the ingredient from what is grown. Consumer could visit the site and order on-line for fresh healthiest food [3].

### 2.2.3 Short Summary

The existence of community garden prove that urbanites from all over the world embraces urban agriculture into practices but may seem unwise in urban setting because of high value of land and competing use of land in city. For community garden, that rely on production-oriented functions alone could be a challenge. Instead, community garden should provide multi-functionality in scarce urban area, which account of efficient that benefits for not only growers but as well as user [17]. The most obvious benefit for user is close proximity to food production. Reliable fresh vegetable, herbs and other food are available nearby but seem not to be user-friendly designed. Additional, focusing on adding more shopping experience

could be added to attract more consumers rather than providing selected packaged produces, like supermarket. Also, community of farmers joining create variety of edibles plant for consumer community rather than one farmer in "The Farmery" project. Therefore, challenge would be designing user-oriented outlet for community garden to maximize functionality fitting for local residents need and specific preferences. Eventually tighten the gap of urbanites and farmers community.

## 2.3 Existing In-store Design

In this section, closer look at type of market and in-store design to seek strong point for designing physical prototype. The discussion are being made through existing researches and on site observation at one of Bangkok's supermarket. This will help understand the influence of in-store design upon consumer behaviors.

### 2.3.1 Farmer market vs. Supermarket

Farmer market bring farmers and consumers close together, to appreciate fresh produce and outgoing environment. Farmer market is common medium to sell fresh fruits and vegetables at specific area directly to consumer, can be both indoor and outdoor where farmers are able to rent stand and set up display for consumers. Farmers market are available seasonally or year round according to the crops grown and operate weekly or daily. Farmer market draws consumers from within a 10 miles radius, compared with a two to three mile radius for supermarket [12]. In USA, there are certified farmer market, where state representative regulated and guaranteed the produces are sold by the people who grows it with naturalistic method. The certification mean that farmer is exclude out of requirement of industrial standard size, packaging and containers. Farmer are freely sold what they really produce. Also, violating rules and damaging reliability of market will be imposed with penalties [28]. Consumers choose to visit farmer market, even though its far away but trustworthy and outgoing environment is the key attraction for consumers.

Consumers preferred friendly environment farmer market more than alienated atmosphere of supermarket. In terms of sociability, consumer look forward to outgoing setting with high interaction level. The architectural of supermarket concentrate on display efficiency, not encouraging communication. To maximize area for display in supermarket, tall shelves are used, which alienate communi-

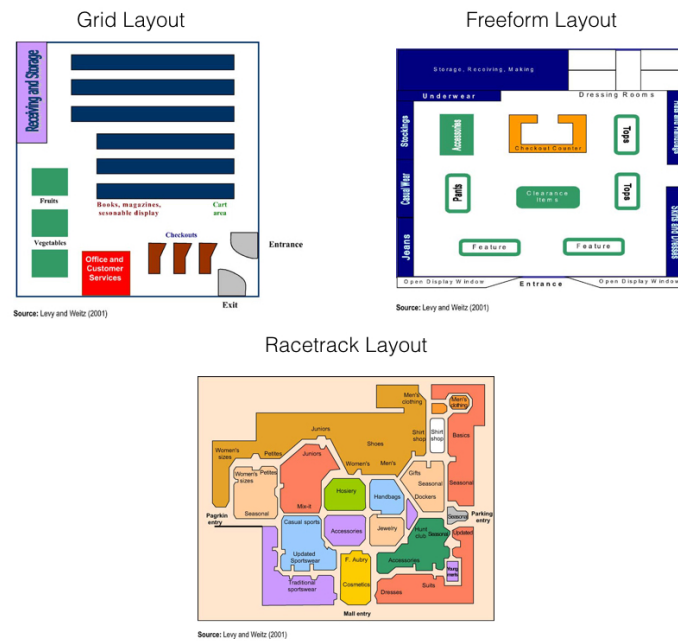


Figure 2.5: Store layout. Images Downloaded from [29]

cation of people from different aisles. As well as, social aspect from clerk, are rate very low. Customer seeing an employee stacking and tagging price product on shelf, felt sorry to bother with their question. Even though employee is willing to help but consumer view employees primary task is merchandise rather than customer services. In comparison with friendly environment farmers market provide incentive for conversation. The layout and object used such as low stand containing fresh produce inside, encouraged conversation on what variety of produce they have, how its been grown and possible usage between sellers and consumers. Also, there is someone available and willing to answer consumer answer in farmer market. The social and educational aspects draw consumer to farmer market [26] [21].

## Store Layout

Image of the store is important in effecting the behavior of consumer [10]. Especially, effective store floor layout could enhance consumer's traffic, shopping atmosphere and behavior toward positive experience. There are three main types of store layout(Figure 2.5) [29].

First, Grid layout is rectangular placement of display shelf, which run in aisles parallel to one another. It's commonly used in retail store as it provide efficiency and flexibility for planned purchase consumers. Consumers with planned product list, could easily identify product's location. The fixed location of the shelf make revisited consumer know beforehand where the pre-selected products at [15] [16].

Second, Free-form layout uses different shape, size and style of shelf and place it in asymmetric arrangement. The pattern make consumer have freedom to enjoy searching the product in any direction inside the store. This form show that it increase the willing shopping time consumer wanted to spend. Also, movable shelf make re-visit consumer enjoy browsing around [18].

Lastly, Racetrack/Boutique layout is organized into zone, each zone have their shopping themes. The layout make customers walk along the designated track through main aisles to visit as many store section as possible. This retail layout creates interesting and entertaining experience.

### Grouping Allocation

Grouping could encourage consumers to efficiently find their product's assortment choice. In supermarket environment, where assortment of product is lay out according to category. This could be this for consumer in searching and selecting their preferences. The small assortment is beneficial if the attractiveness level is high. In addition, small assortment is not beneficial if the attractiveness level is low because consumer expect more choices from larger assortment. Consumer with limited amount of processing, like more small assortment but consumer in need of exploring, prefer large assortment [6]. The attractiveness of small assortment depends on the popularity of the options. In grouping edible plant into numerous popular food recipe, could simplify decision and be attracting to consumer with limited selective time [5].

#### 2.3.2 Bangkok Supermarket

In order to understand how in-store design could influence shopping behavior of urbanites living Bangkok and direct competitor, real observation at supermarket is performed. A one day visit to supermarket called "Gourmet Market" located at "Siam Paragon" shopping mall in central Bangkok.

In general, grid layout is being used for only vegetable, herbs and fruits zone (Figure 2.6). There are two form of shelf, the first is waist level shelf. This kind

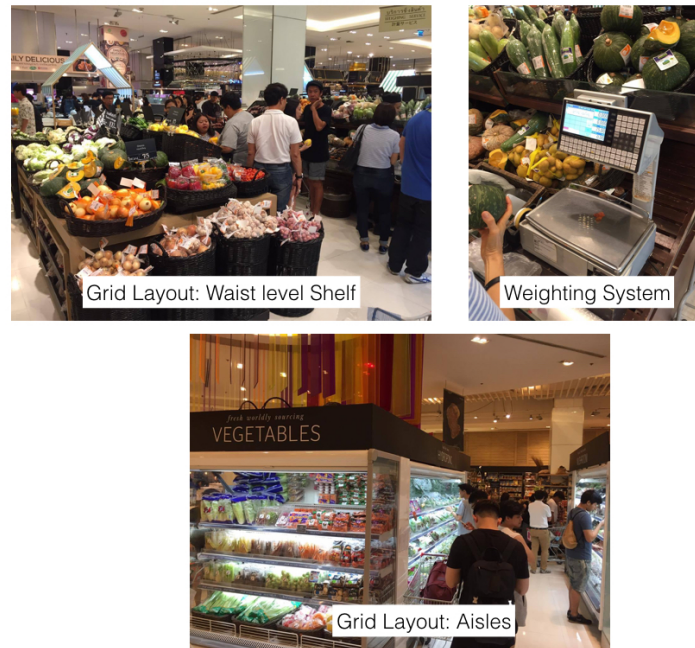


Figure 2.6: Gourment Market's Layout

of shelf provide urbanites to closely select which individual produce and pay by weight. Mostly, medium to large size, and local vegetable and fruit produces type are being display. Produces are being wrapping in plastic films with guarantee sticker attached to it. The colorful waist level shelf seduce urbanites and it's convenience locating their prefers edibles. Secondly, three aisles shelf, each contain different selling point categories of hygienic, hydroponic and organic. Hygienic guarantee the cleaning process of the edible. Hydroponic is produce are grows without soil and organic is grown naturally with soil.

Within each selling point categories, there is salad, menu, imported, and local section (Figure 2.7). The salad section contain only salad vegetable with topping and dressing sold together. Also, urbanites could choose particular type or buy in package with multiple type of vegetable. The menu section, provide all of the ingredient of edible produce in one package. Most of the package size could cook one or two dish of the menu. The imported section have all of the imported edible produce that Bangkok doesn't have. The local section is edible produce grown in natural method by Thai farmers. Mostly, inside aisles shelf mostly contain packaged vegetables, herbs and small size fruits which urbanites can't



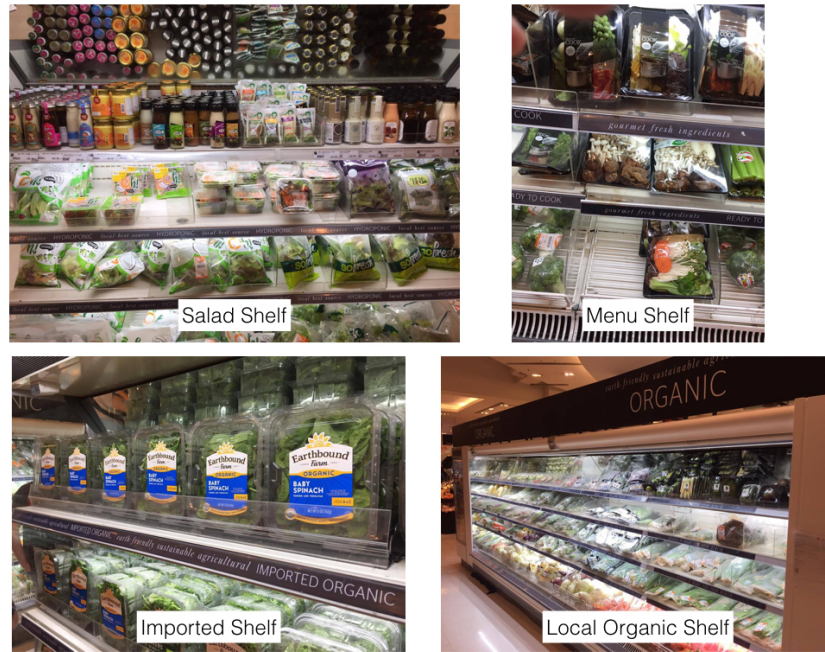


Figure 2.7: Shelf Allocation

select individual edible they favor. Most of the time, the traffic of aisles shelf is crowded and block by shopping cart. Through observation, many inspirational aspect have been taken to account to add on to concept. The in-store design cue could be adapt to use in designing the prototype.

### 2.3.3 Short Summary

Supermarket as commercialize outlet but with aisles of shelf and packaged edible plant, didnt bring enjoyment in shopping and fully represent organic quality. Existing research studies and observations from Bangkok supermarket shown in-store design cues that influence urbanites behavior. The importance of atmosphere, store layout and product allocation is considered. From the study, pinpointing out appropriate inspiring factors for development, bring novelty to in-store design and use beneficial element in building physical prototype.

# Chapter 3

## Concept

Buying fresh edible plant such as vegetable, herbs and fruits in urban areas should be informative, reliable and incorporate authentic and immersive experience. Urbanites should be able to directly buy edible plants from the source and be informed through engaging in the process of harvesting. This chapter will elaborate on the philosophy and vision of "Pick Your Organic Mart". Later on, describe the overall concept and detail scenarios of farmers and urbanites community. Furthermore, simulate in store environment through Sketch up program<sup>1</sup> to get a clearer picture of how the mart looks like. Lastly, create physical prototype shelf and display content that is approachable by users.

### 3.1 What is Pick Your Organic Mart ?

Consumers buying edible plant such as vegetable, herbs and fruits should acknowledge who and quality of how its been grown. Especially, urbanites that usually buy vegetables, herb and fruits from supermarket, that traveled hundred miles from its source. In which, produces were pick up when its not ripe and artificially ripen along the way to store, consequently its flavor and quality changes. Its inevitable norm for urbanites because of proximity from the source. The food chain system in urban city are limited to relying surrounding areas for growing or processed edible plants from other countries.

"Pick Your Organic Mart" is design to tighten the gap between farmers and urbanites community in urban areas, to perform direct distribution of organic edible plant with immersive and authentic shopping experience for urbanites. An urban outlet that directly distribute organic edible plant to urbanites by invite community of farmers to involve and grow. Unlike other marts, "Pick Your Organic Mart"

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1 3D computer program, creating model to use in many application such as architectural.



discard distribution and transportation for urbanites to harvest freshly produce directly from the growing plant at the mart. It acts as the medium, connecting both farmers and urbanites community.

Magnetizing community of urbanites through in store immersive and authentic experience of Pick your Own theme. Where, community of urbanites can learn more about the produce by harvesting by themselves in store. The mart will provide variety produces from different specialty farmers serve the best taste and quality for urbanites. Also, through intimacy with farmers generating knowledge about how its grown, creating trustworthy and re-visit. The propose size is 35 square meters which could be alter and redesign according to location. The standard mart infrastructure consists of two floor, where the rooftop is a greenhouse for growing fresh edible plants and first floor is mart for urbanites to go through direct distribution of organic edible plant with immersive and authentic shopping experiences.

## 3.2 Philosophy: Urban Agriculture

Large cities are becoming the main habitat for majority of population. Significant reasons are life changing opportunity, convenience lifestyle and best facilities located in these areas. Therefore, cities are encounter problem of increasing number of city dwellers which mean more mouth to feed. Still, being dependence to surrounding areas for agriculture claim problematic amongst economic and social well being. Urban agriculture is a stepping stone for urban sustainability [7].

Taking account of triple bottom line sustainability<sup>2</sup>in mind. Urban agriculture is important ecosystem for both farmers and urbanites community. For economical side, it creates and prevent extinction of farmer occupation. Bringing farmer in, to use urban areas as farmland is beneficial. The advantage of close proximity with real demand, discarding extra cost imposed by agribusiness men and transportation. Possibly, directly distribute their produce to urbanites community and able to learn about their preferences. Therefore, farmer will know what urbanites like and grow accordingly. On the other hand, urbanites will be serve with preferred produces with best quality of chemical free and tasteful. Definitely, increasing social well being of urbanites and financially, farmers get more margin from sales.

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2 Balance of environment, financial and social well being to achieve sustainable city.

Moreover, increasing in green space in urban areas through urban agriculture also reduce global warming and urban waste. Urban agriculture definitely reduces carbon dioxide. By growing inside urban cities boundaries, there is no need for food transportation, in which reduced the carbon dioxide emission from transportation. In addition, reduction of waste also occurs, as for cosmetic of packaging to make produce look appealing and to preserve it for transportation is remove. As growing produce could be more than just for consumption but also creating better micro-climate and ultimately filter to air pollution. Neighborhood containing green space will encounter livelihood from greenery and fresh air with beneficial of eatable produces. Eventually, more and more people will realize the benefits and get involve, expanding it to larger scale [9].

### **3.3 Vision: Alternative medium in urban food chain system**

Presently, urban food chain system limits urbanites living in high apartment and condominiums, to get most of their ingredients from grocery and supermarket. In which, would face with uncertainty of the its freshness and added cost from shipping, packing and handling. Majority judged freshness from label of packaging and make subtle decision about high price means high quality, but its all about marketing. Whereas, shifting to farmer market would be a great alternative to get fresh air and naturally grown produces from the hand of farmers. Urbanites are invited for free tasting and explanatory of how its grown by the growers themselves. Its a privilege to have face to face conversations with growers, acknowledging your produce are safe and chemical free with no added cost.

Consequently, the best solution is to bring the source of growing produces close to consumers. This could be done by creating incentive from both communities of farmers and urbanites through new medium. This new medium must provide urban farmlands for farmers and apply immersive and authentic experience to appeal to urbanites. Bringing specialize farmers to perform urban agriculture on urban farmland, would create and expand urban green space. This urban green space shouldnt be only for beautiful scenery but also produce edible plants that are safe to consume. Apparently, produces from this urban green space are freshly distribute to urbanites table enhancing social well being for urbanites and economically, ensuring job to farmers. Therefore, the aim is to reshape urban

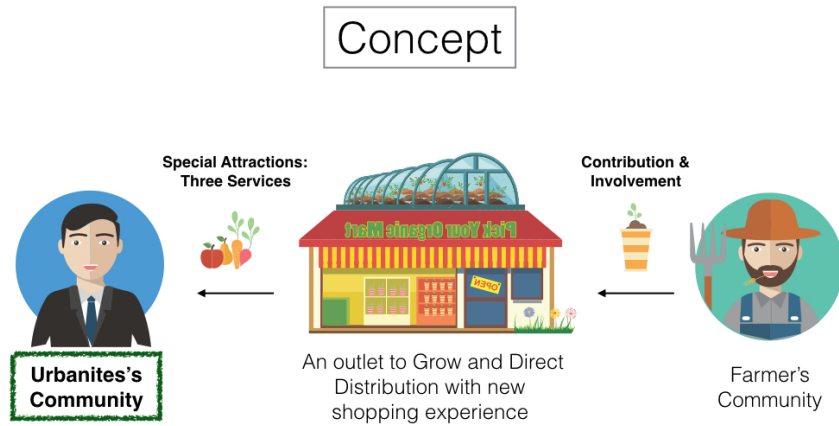


Figure 3.1: Overall Concept

food chain system for urban sustainability.

### 3.4 Design Concept

Suppose, urbanites wanted to buy fresh vegetables as ingredient for their meals. Majority would turn to supermarket or grocery store near their house. It would be the most trustworthy and convenience in urbanites mindset. Profoundly, source of those vegetables travel from rural farmland outside urban boundaries which it takes time and preservation method before it sell in supermarket and grocery. From that instance, urbanite began to choose wisely on buy from produces source. Most urbanites shift to farmer market, where farmer bring their produce to directly sell to urbanites. Even, travel faraway to rural farm to be confidence of the quality of produce they buy. Its inconvenience and not often urbanites could do.

"Pick Your Organic Mart" (Figure 3.1), overall concept is to fulfill need and wants for "Urbanites community" in win-win principle with other stakeholders. Through merging farmland and mart into urban areas, keeping in mind win-win policy between farmers and urbanites communities. The focus is for community



Figure 3.2: Pick Your Menu

of urbanites, they can visit the mart and experience three services through direct distribution of harvesting edibles produces by themselves. The support from community of farmers will guaranteed practicality of three services and longevity of the mart by locally and naturally grow in urban farmland, providing variety of produce and create re-visit.

## 3.5 Special Attractions: Three Services

"Pick Your Organic Mart" focuses to perform unique three services with theme of "Pick Your Own", to urbanites. As an outlet, appealing factors doesn't come from organic produces and price itself. In creating novelty, the key is implement magnetizing services with immersive and authentic value in attracting urbanites. This section will explain in detail about the services.

### 3.5.1 Pick Your Menu

"Pick Your Menu" let urbanites to harvest edible plant with best quality and desire quantity with farmer's assistance in the mart (Figure 3.2). On site, urbanites are invite to harvest vegetables, herb, and fruits with provided tool and put it in plastic bag by themselves at the mart. The rule is one type of produce per



Figure 3.3: Pick Your Salad

one plastic bag only, cannot mingle other type into same plastic bag. Through harvesting, urbanites will be assisted by farmers in recommending which produces suit the menu, in taste, texture and other profile including healthy benefits. In addition, educating on growing methods and harvesting process. Also, suggestion about quantity to pick for that menu. Therefore, urbanites will have the best quality and right quantity to cook their dish. Afterward, to checkout, urbanites have to bring plastic bags with their harvested produces inside, to cashier. The cashier will calculate the prices by inputting type of produce and its weight by grams for payment. Then urbanites will takeaway their picked produce to cook at their destinate location. In hope of these provided services and experiences, could make "Pick Your Organic Mart" an alternative for urbanites to buy edible plant for cooking.

### 3.5.2 Pick Your Salad

"Pick Your Salad" invite urbanites to experience picking and eating fresh grown salad vegetables directly from the source (Figure 3.3). Urbanites entering the mart could choose from various type of salad dressing in different container size. In which, the creators of dressing are well-known chef guaranteeing healthy with tasteful. After choosing dressing, urbanites will be given a container with salad dressing and guide to pick only from salad area. Farmer's assistance in harvesting and guiding on process to eat such as cleaning and which part is eatable is pro-

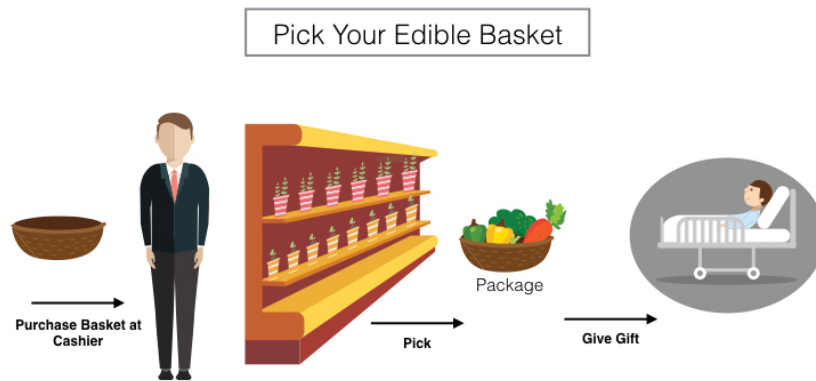


Figure 3.4: Pick Your Edible Basket

vided on site. Farmers lend in a hand to recommend which salad vegetable goes best with chosen dressing of each urbanite. Therefore, urbanites can freely walk around and pick and dip to experience freshness and nutritious salad from the source. If come with companions they could share that delicious moment with each others. Eventually, when the salad dressing is emptied, urbanites will be remind to purchase a new container with salad dressing to continue picking. The enjoyment of self selecting, knowing that it's fresh, sharing memories with companions and learning about the produce bring a new value to shopping experience and may further lead to change in eating habits of urbanite's community. To eat fresh from the source.

### 3.5.3 Pick Your Edible Basket

"Pick Your Edible Basket" provide urbanites with a basket, letting them select and pick vegetables, fruits and herbs as meaningful gift to their love one (Figure 3.4). Attachment with family and love ones make it difficult when buying gift that represent your love. It's the solution for urbanites uncertainty of what to buy or to differentiate from common gift to show their affection to love one's important event. Entering the mart, urbanites can choose from varies size of basket. After choosing basket, urbanites will be guided to the picking area. Inside the picking area, urbanites could pick by themselves if they know what they are looking for.

If not, through conversations, farmers could assist in finding the right meaningful vegetable, fruits and herbs for the urbanite's love one. After filling the basket, "Pick Your Organic Mart" have the packaging service in decorating the basket. Eventually creating impression of healthy caring and affection in giving. Later on, for receiver could use for healthy consumption. As for this experience of being mindful of knowing what your love one wants and hand pick fresh vegetables, herbs and fruits could change urbanites gift shopping experience and consumption habit.

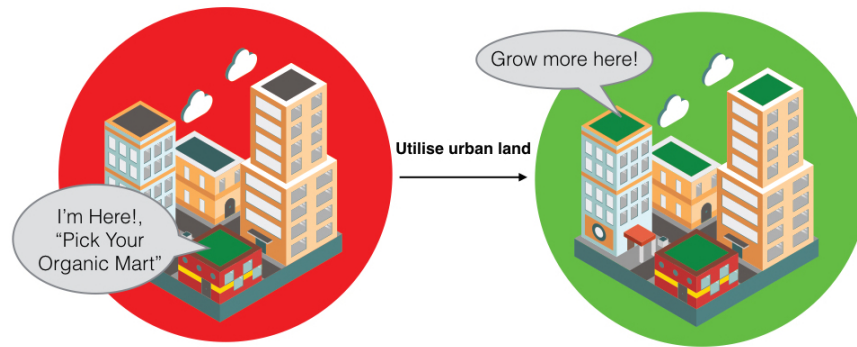


Figure 3.5: Utilize Urban Farmland in vacant urban areas

### 3.5.4 Contribution and Involvement

Community of farmers cooperating in Pick Your Organic Mart need to implicit support to urbanites in many dimension. The best quality produces with sufficient quantity to serves urbanites. The variety and specialize produces for urbanites living in different urban areas zone. Lastly, creating loyalty, new produce and produce grouping as incentives for urbanites to re-visit.

#### Urban Farmland

Land is the main factor for productivity of agriculture, in which urban land prices are high because of competitive usage and limited. "Pick Your Organic Mart" will be using its rooftop to grow produces and directly sale it. Even though, using rooftop of the mart for farmland is wise idea but its insufficient to support large number of urbanites. Eventually, there are still vacant and abandoned land that can be utilize for urban agriculture. Vacant land such as rooftop of high stories building or some abandoned building is an opportunity (Figure 3.5). "Pick Your Organic Mart" will seek through these land and coordinate it for farmers to increase their productivity. The way to choose which land, is decide upon the proximity of two kilometer perimeter of mart. The edible plant will be grown individually in container, to not overlay with soil rooftop surface and not disturb the building structure. Also, its easy to transport because its able to carry by individuals. Therefore, fully grown produce could be transport from farmland to mart in short distance. This could safe added cost and expand green space





Figure 3.6: Specialized produce to serve particular zone

throughout urban areas.

## Zoning

Suppose there is high positive need of "Pick Your Own Mart" from urbanites. Calling for expansion of outlet to different zone of urban areas. The issue would fall upon not only how to gain more urban farmland and farmers to join in but also the differentiation and variety of produce in each outlet for urbanites. By noticing, each outlet overlay on different zone with different climate and soil conditions. This feature is beneficial to distinct identical produce from each zone. Farmers could use different conditions of that zone's climate and soil, as handicap to grow uniqueness out of their produces. Such as farmers growing carrots could differentiate the quality of taste from other because of planting condition.

In addition, not only differentiate the quality but also create variety (Figure 3.6). Being community have it's advantage of knowing what other is growing. This aspect, could help farmers not grow overlapping produces to create varieties to serve urbanites. Therefore, beneficial for both community, farmers are not fighting in price war because of produce diversification. Urbanites have the chance to experience unique quality and diverse type of produces in different zone.

## Re-visit

Another challenges is to create urbanites re-visit through building incentives by farmer's loyalty approach and with monthly menu grouping in particular zone (Figure 3.7). Each farmer's background story and talents will be inform through

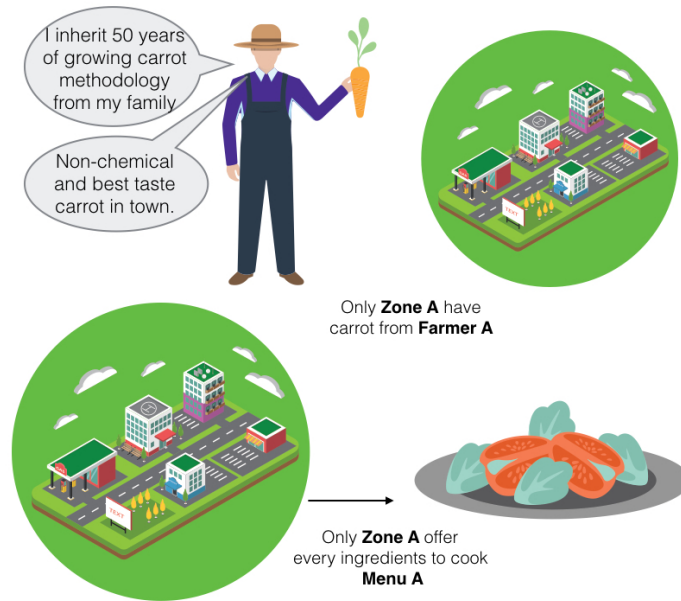


Figure 3.7: Creating Re-Visit

consumer's assistance and in-store display content inside outlet. Farmer's build trust through conversation with urbanites about their talents, unique techniques and growing methodology. Such as the story behind the growing procedure to achieve wonderful taste and appealing looks. In addition could give eating recommendations for urbanites from available produce. Somehow, health educating the urbanites in a way, such as type of produce to eat, which is ripe for best taste, holding most nutrients, and the healthy properties behind. Farmers could recommends best match ingredient to cook according to consumer's menu and flavor preference. Lastly, each particular outlet in different zone could combine ingredients grown that best fit into special monthly menu. The value of diverse menu provided by different outlet could attract urbanites to re-visit outlet with most favorable menu or visit other outlet to try out new menu.

### 3.5.5 Urbanite's System Flow

In general, urbanites with intention to cook, eat salad and buy edible basket could check beforehand what is fully grown and available at which outlet locations in the website (Figure 3.8). The update will be done by farmer's community with

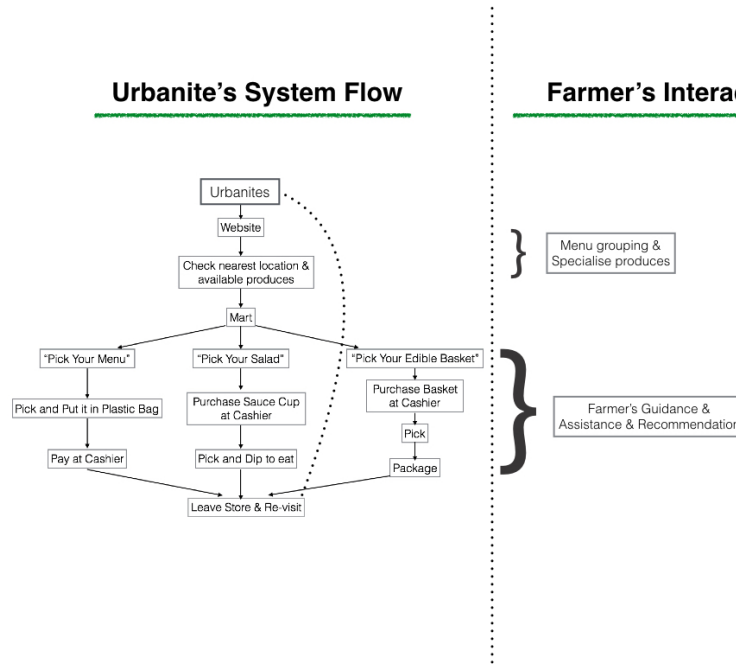


Figure 3.8: Urbanite's System Flow and Farmer Interaction

information about monthly menu grouping and specialize produces available at each outlet nearest to users. At the mart, urbanites will experience will three service of "Pick Your Menu" picking edible plants to cooking, "Pick Your Salad" picking edible plants and dipping to eat, and "Pick Your Edible Basket" picking edible plants as gift. All of these experience will be aid by farmers giving guidance, assistance and recommendation. Until "Pick Your Organic Mart" fulfill urbanite's needs and wants with immersive and authentic experience.

## 3.6 Rapid Prototype

### 3.6.1 In-store Design

The purpose of simulating in-store environment through "Sketch Up" program is to get a realistic understand of both in-store layout and shelf (Figure 3.9). In this design, the width of the mart is five meter and length of the side is seven meter occupying 35 square meter, a reasonable space size for startup. Overall, green color and wooden texture are used to give natural atmosphere and impression of

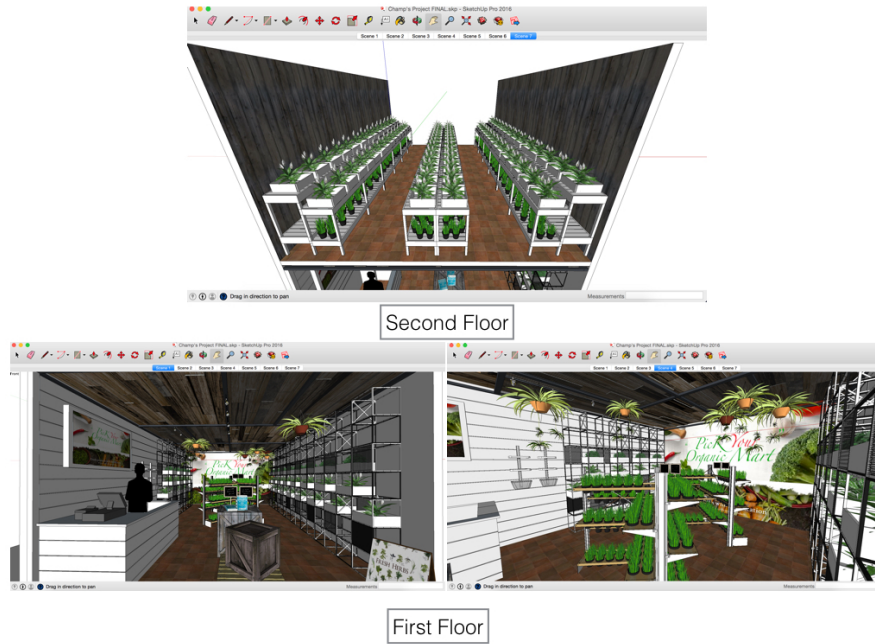


Figure 3.9: In-store Design

escaping town to country side.

The first floor is design to have cashier at the front near the door. Therefore, urbanites walking could instantly know what service and procedure from conversation with farmers, as clerk. Shelf layout is design in simple matter, where urbanites can see the overall produces at first glaze. Furthermore, shelf layout is dissected in three section, each sections will contain different kinds of edible plants corresponding to three shopping services. For instance, "Pick Your Salad" section will contain fully grown salad vegetables. Consumers chosen "Pick Your Salad" will be guided to walk through salad areas. For other two service, consumers are free to search and pick vegetables, herbs and fruits from the shelf. To enter second floor, there is separate staircase outside at the back of the store.

Second floor is used for greenhouse, to grow edible plant for inventory to support the mart. The floor is divided into three row for best use of the area and convenience pathway. Also, growing edible plant in horizontal manner to maximize exposure to sunlight. The edible plant is naturally grown inside a container with soil. By doing so, it's easily to transport the whole fully grown edible plant to first floor to the shelf, ready to be pick. Also, exchange picked edible plant to the

second floor to further cultivate. The instant supply could support day to day rotation and standardized freshly grown edible plant to consumers to pick.

## Display Content

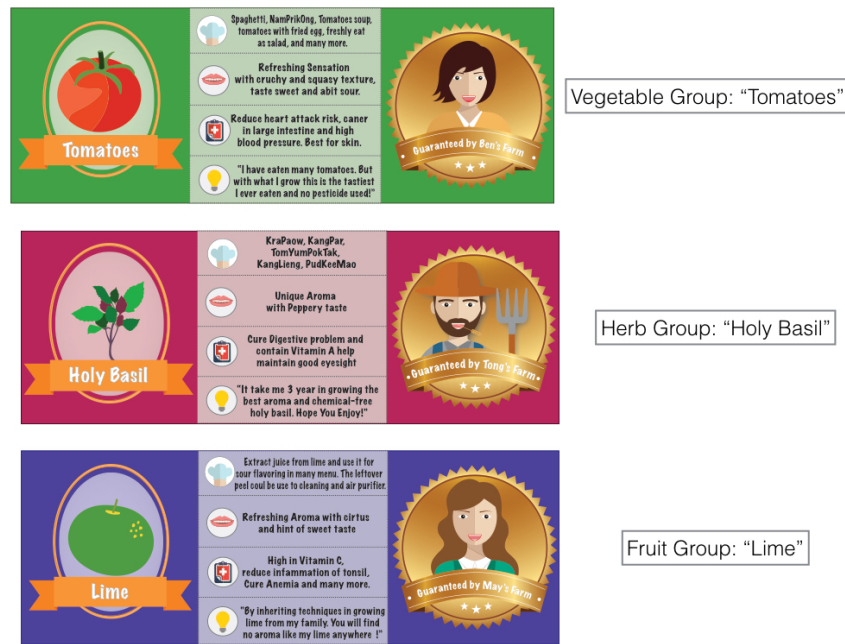


Figure 3.10: Display Content

Attention to detail, by adding cohesive display content to the shelf, will enhance the shopping experience. Display content acknowledge properties of individual kind of edible plant, which could enhance urbanite's knowledge about harvesting edible plant (Figure 3.10). The display content for this shelf comes in form of signage and located at point of sale. The background color act as category signage, identifying the type of edible plant such as green is vegetable, red is herb and purple is fruit. The identification is base on the culinary not the scientific meaning, of the edible plant. Such as categorizing tomatoes as vegetable because it's mainly use as for cooking and eating as a meal in Bangkok, Thailand. Even though scientifically define as fruit.

At the left of each signage indicate name of edible plant. In the middle, display description box about edible plant from the grower. Inside description box, from the top, is recommendation of how to eat and what menu can it be cook. This

information could assistance urbanites in suggesting edible plant applicable to other menu then their usual. Next, the unique taste and aroma profile claim by grower. Urbanites could choose amongst variety of edible plant with unique taste and aroma profile that fit their preference from different farmers. This guaranteed insight create confidence in selecting to eat as salad or in choosing the right ingredients for their menu. Then, brief health properties about nutrients of edible plant and healing effect. This remark aid urbanites buying decision of edible plants as a gift to their love ones. Lastly, a quick quote from grower, introducing neither from growing method or techniques or background. Urbanites will be notify and assured of quality. Lastly, to the right of the signage is stamp with grower's name and picture for future recognitions and re-visits by guaranteeing the produces.

## 3.7 Pre-Test: Fieldwork

In this section, research on feasibility of design concept and rapid prototype is conduct. Where the evidences collected will be discusses and demonstrate "Pick Your Organic Mart" potentially being possible for urbanites living in Bangkok, Thailand.

### 3.7.1 Methodology

Pre-test phase, is fieldwork consisting of in-dept interviews and explanation of design concept and prototype to urbanites and urban farmers. Five of the urbanites and three of urban farmer will be chosen to interview. The feedback from urbanite's interview address practicality of three shopping experience. Whereas, fieldwork with urban farmers and interview, proclaim potentials of farmer's contribution to the mart in urban areas. The overall feedbacks from fieldwork will be considered and influence in the physical prototype testing.

### 3.7.2 Fieldwork Structure

In general, the structure of the fieldwork are similar for both of urbanites and urban farmers but separated with different question content. They will be asked with one set of question, before and after explanation of concept (Figure 3.11).

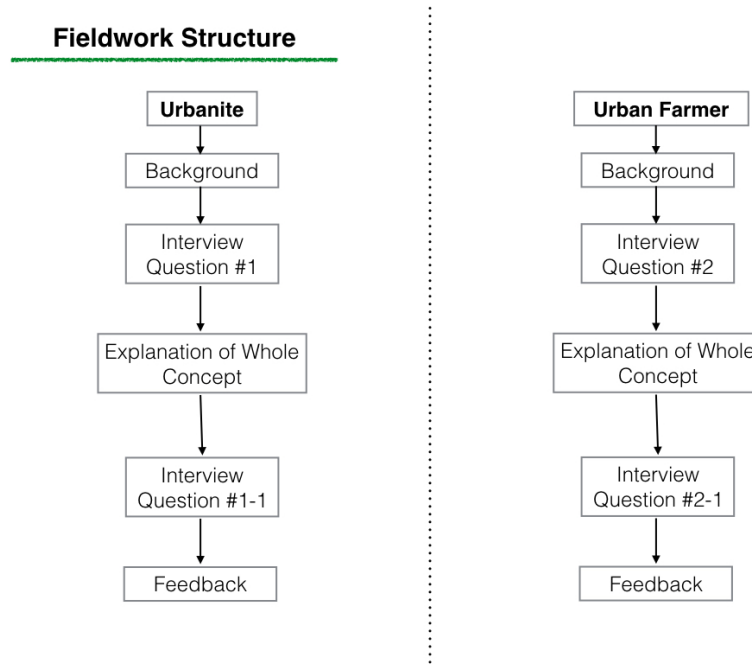


Figure 3.11: Fieldwork structure of both Urbanites and Urban Farmers

Overall, general interview guide approach<sup>3</sup> is used, where checklist of general question are use to collect information from each interviewees. Still give the researcher degree of freedom and flexibility on question sequence to explore and also ask further questions interesting for their topic. This approach is useful for researchers to deeply investigate and evoke insightful information about the topic.

### Urbanites

Urbanites will be contact for interview through call and chat application. For urbanites one on one interviews, it take around 15 to 20 minutes per interviewees and assume to be mostly sit at one location to interview. In the interviewing procedure, additional question might be asked when feedback of interviewee probe to be interesting to researchers. At first, interviewees are ask to introduce their basic background information such as their demographics. Later, they are ask according to general set of question number one:

<sup>3</sup> An approach in method of in-depth interview

- Where do you usually buy vegetables, fruit and herb?
- Do you go alone? Prefer to go with someone?
- Are you health conscious?
- How do you select or know its quality? Fresh? Non-chemical?
- Are you confidence with your choice?
- Do you know which combination of vegetable and herb to create a menu?
- Do you want suggestion/recommendation for purchasing? Taste profile? Usage? Health benefits?
- Do you use or eat the whole pack of vegetables, fruits and herbs? or save leftover for later?

Afterward, explanation of concept through presentation and in-store simulation are shown on smart phone to interviewee. Then, question set number one dash one is being asked to optimize feedback result and open for further discussion. The general question consist of:

- Are you interested in the concept? Do you think its possible?
- Does the in-store and shelf design appealing to you?
- If Pick Your Own Mart exist, would you buy vegetables, herbs and fruits from the mart?
- Which service amongst the three of Pick Your Menu, Pick Your Salad and Pick Your Edible Basket is most interesting for you?
- Do you want to invite friends or family member to the mart?
- What is pro and cons of concept?



### Urban farmer

The differences of one on one interview with urban farmers are the question's content. Also the assumption of flexibility within interview's location is higher due to standing and walking for showcase by urban farmer. Also, additional question might be ask, if the particular topic is interesting and need more elaboration. In total, it took around 30 to 40 minute per interview with urban farmers. At first, interviewees are briefly ask to tell about their background. Then they are ask with question set number two:

- What is your inspiration for urban farming?
- How long have you been doing urban farming?
- What is your purpose of urban farming?
- What do you do with produces from your Urban farming? Sell? Eat by themselves?
- What is your growing method, size of your plantation and why? Meaning of Organic?
- What kind of edible plant your growing? Lead time of growing?
- How to protect pollution from effecting produce quality?
- Is there any way to modify quality of produce through growing techniques? Taste profile? Texture? Size?

Next, explanation of concept through presentation and in-store simulation are shown on smart phone to interviewee. Then, urban farmers are ask with question set number two dash one and open for further discussion:

- Is the concept interesting? Do you think its possible?
- How to improve the concept in term of growing?
- Do you want to be a part of Pick Your Organic Mart?
- It is practical to grow on rooftop? What method to use?
- What is pro and con of concept?



Figure 3.12: Urbanite's Interviewees of Fieldwork

## 3.8 Result of Fieldwork

### 3.8.1 Urbanite's Feedback

The name of interviewees are classified preferable to their preference (Figure 3.12). Two male and three female interviewees are chosen from different age level and background were interviewed. The location of the interview varies according to the convenience of the interviewee.

#### Interviewee "A"

- Background: Bangkok Bank Employee.
- Date: 20th May, 2017
- Time: Around 18:00
- Place: At his apartment inside Bangkok area.

- Quote: "Picking my own edible plant makes me confidence in freshness of what I am eating"

Interviewee "A" age around 25 is a busy man, his life start of early in the morning to work and ended late at night after working. Because he live alone, sometime he often hang out and drink with his co-worker, in weekday. During weekend, he usually exercise at fitness facilities provided by his apartment and cook himself healthy meals. Usually, he goes to buy the ingredient by himself at nearest supermarket. He prefer to go with his girlfriend if she around and if he is not in a rush. Every time he goes to supermarket to buy edible plant, he will look at the packaging label and size. If the packaging doesn't appeal trustworthiness to him, he will alter or not buy. Then he would be more confidence, if the clerk could help suggest and recommend how and what to choose. Most of the time, he bought more than what he eat because there aren't packaging size that fit his prefer quantity. The leftover is dump inside in his refrigerator and thrown away at last.

After explanation of the concept and showing simulation of in-store design. Interviewee "A" is interested with the concept. In the aspect of picking his own ingredient and think there is possibility because he will surely visit. Further added, the in-store design look clean and shelf layout with signage looks modern, making it trustworthy. He said all of the service provided is interesting and would like to invite his girlfriend to come with him. He favor the mart because it's located in urban areas and doesn't have to travel far to get this experience with best quality produce from rural farm. Still, he wonder about the prices because if the price is higher than supermarket he would rather go to supermarket because it's one stop service form him.

#### **Interviewee "B"**

- Background: Mass Rapid Transport Authority Employee.
- Date: 21th May, 2017
- Time: Around 10:00 am
- Place: At her house at Bangkok
- Quote: "Being serviced by the growers themselves, make me want to learn to cook"

Interviewee "B" age around 30 concern about time and efficiency. She a working woman and have to travel to workplace by herself. Therefore, usually doesn't cook for her self and buy ready to eat meals that tasteful but sometimes unhealthy to her. If she needs to buy edible plant, she choose to go with a friend and buy it at supermarket near her house. At supermarket, she choose to buy edible plant with label and guaranteed sticker because she can't fully distinguished the quality and the types. Therefore, she need advice from credential person in suggesting on purchasing, both quality and quantity.

After showing the concept and in-store simulation, she seem to be interesting but she doesn't want to visit it. The reason is because she doesn't have the knowledge of harvesting the best quality edible plant and felt not confidence if she need to choose it by herself. She will visit if she is with a companion or guidance. The signage and the information display is helpful but it would be better if there is a person who can talk to. The in-store and shelf design felt modern to her and appealing in natural design. The three service is weird because it never exist in Bangkok before, but she wanted to try it out. The pro of the concept is the shopping experience guarantee the freshness, and non chemical usage of the produce. Also with assistance of credit farmers, she could come alone. The con, are if she is lazy, is there any service that pick for her and send it to her home.

#### Interviewee "C"

- Background: Housewife and personal business.
- Date: 21th May, 2017
- Time: Around 11:00 am
- Place: At her house at Bangkok
- Quote: "It's not just about buying but also earning friendship with community of growers"

Interviewee "C" age around 50, usually stay home because she a house wife, she know how to cook very well and her duty is to take care of her family members. Also, she have a small home edible garden at her backyard. Everyday, she went out alone to buy ingredients for cooking including edible plant at wet market near her house. She doesn't go to supermarket because she become close friend with the sellers at wet market. In choosing, she is more confidence to rely mostly

on seller's recommendation. If she choose by herself, she tends to wisely choose healthy ingredients cause quality is significant to her. In selecting, she skim around the product, if there is worm bite, she reject it. She would be delighted If there are health benefits informing her when she buys.

After explanation of concept and displaying in-store simulation. It's interesting and have high possibility in Bangkok. The in-store design is appealing and likely for her to take a visit. The "Pick Your Own" theme and with assistance and recommendation of the grower themselves make her confidence of the quality being more fresh than wet market. She like "Pick Your Menu" the most because of farmer recommendation on best taste profile of produce that fit her menu. Also, the friendship gain with grower could magnetize her for re-visit because she want to learn about growing method of edible plant. She would invite her family member to join the shopping experience, it's good for family relationship building. In addition she suggest adding smoothies service, of picking your own fruit and vegetables to make smoothies at the mart. The pros of the concept is confidence in freshness and consumption safety. The con is if there are many visitor in the mart, be careful about them touching the edible plant and ruin the conditions.

### Interviewee "D"

- Background: Freelance and Content Maker on Facebook.
- Date: 24th May, 2017
- Time: Around 21:00
- Place: At restaurant at Bangkok
- Quote: "Buying gift is what I never want to experience but "Pick Your Edible Basket" could change my thoughts"

Interviewee "D" age around 20 is freelance and content maker on Facebook pages. He live in unscheduled life, sometimes wake up late because he have to work the whole night for his project. He seem to be health conscious because he's selective in what goes into his mouth. Mostly, he put his time into work and order his maid to buy or cook him food. Therefore, he usually didn't buy edible plant by himself. If he had to buy, he like comfortable lifestyle and chooses to go to supermarket because of air conditioning and conveniences. He doesn't have any knowledge about edible plant and aren't confidence about choosing be himself.

Consequently he chooses to go with his maid or someone he trust to purchase the right quality and quantity.

After showing the simulation and overall concept. He said it's out of the ordinary for urbanites in Bangkok. Still it's interesting and possible because these services could only be found at rural farm such as fruit buffet at "Rayong" provinces. The in-store and shelf design correspond to the current trend, simple, neat and clean. The three services will bring authentic experience to him. "Pick Your Edible Basket" is most interesting because he usually buy common gift which is dull but with this it could be surprising. Also, information on the signage make him more confidence in selecting. The pro of the concept is freshness and can choose the quantity. Also, sometime when buying vegetable in a package in supermarket, he have to choose the whole package even if there are unwanted vegetable with bruises. The con is price might be high, management system of the plant rotation to the shelf must be consider and there must be variety of edible plants and other product in the mart. Such "Pick Your Menu" service should have meat and sauce to purchase in the mart.

#### **Interviewee "E"**

- Background: Kasetsart University Student, Major in Economics.
- Date: 23th May, 2017
- Time: Around 15:00
- Place: At Kasetsart University
- Quote: "It's trendy concept in experience freshness salad vegetable from the source in Bangkok "

Interviewee "E" age around 20, she is still university student. As being female, she concern a lot about her health. She live with her mother in a rented apartment. Everyday she will make herself eat fruits and salad for dinner to keep her weight and body shape thin. Usually, she go with her mother to buy from both wet market and supermarket near her. For wet market, she like the friendly atmosphere of sellers and variety of local food but it sometimes seem dirty and smelly to her. As a result, sometime she goes to supermarket where it's air condition and clean. Even though the price might be higher. In choosing, she can't cook and can't distinguish between vegetable that why she need assistance from

mother or clerk. In quality wise, she seem to be quite confidence if she buy from supermarket that edible plant is fresh and chemical free. She need suggest and if there is health and taste profile, it would be insightful and increase her confidence level.

After showing the concept and the in store simulation. She seem to be interested with "Pick Your Salad". It would be a new experience in eating salad because usually in Bangkok there are only salad bar not salad garden let this. Also, the current trend of teenagers are health. She say it will really correspond to the people who are health conscious but don't like the ordinary consumption experience. Furthermore, she would bring her friend as a companion to the mart and would be likely to take photo inside because the in-store design and concept is trendy. The pro of the concept is she can buy and eat the quantity she going to use for that day. Also, with farmer informing and signage , she is confidence in her choice. The con is the store seem to be too small, if there are a lot of visitor and high traffic, it would create low satisfactory. In addition, there should be some regulation in protecting visitors not to fight over produce is important.



Figure 3.13: Urban Farmer's Interview of Fieldwork

### 3.8.2 Urban Farmer's Feedback

The Urban farmer's name that were interviewed is classify due to request from interviewees (Figure 3.13). Three urban farmers were interviewed. At first, visiting the "Grandpa Urban Farm" to interview two urban farmers, one male and one female. Then interview another female urban farmer at "Bangkok Food Journey" event.

#### Urban Farmer "A"

- Background: Doctor in the field of "Development of Well Being in Integrated Community".
- Date: 25th May, 2017
- Time: Around 13:00
- Place: At "Grandpa Urban Farm"
- Quote: "No choice but to get growing"





Figure 3.14: Grandpa Urban Garden

Urban Farmer "A" age around 50, had home base edible garden in his previous house but because of the flood, it wash away all of his plant. He then move into his father house, in which at that time it wasn't urbanize yet and it was hard to find supermarket nearby. He decide to re-establish a home edible garden using urban farming natural method to grow to produce and support his family. If he have some produce leftover, he will share it with his neighbors. Afterward, he wanted to share the knowledge and importance of living s sustainable life through growing edible plant. He decide to set-up workshop teaching other how to grow and build a sustainable ecosystem at home.

He guide me to take a look at the urban garden at his backyard (Figure3.14). The size of the garden is around 40 to 50 square meters with diverse type of plant grown and even rice can be grown. Also, there is vertical garden growing salad vegetables and herbs. The rooftop of the chicken cage is utilize as a plantation. He describe that he never use hydroponic because it's not organic. The system add chemical and vitamin into water to make edible plant grow. Edible plant should be grow naturally because people are consuming it. Even though, it take around two month to grow and might be slower than hydroponic but consumption safety is

important. He explains modification of produce from edible plant is possible. The method is to use fermented water from natural resources to add hormones to the plant. Such as if you want to make your lettuce more crispy, use egg and its shell as ingredient for your fermented water. If you want to make your vegetable sweeter, use fermented water from leftover fruits. This ensures about making produce unique.

After taking a look at the concept and in-store simulation. He says that Thailand has only two seasons: rainy and sunny. The importance is how to protect your plantation when it's very sunny and over watering in rainy condition. Then he advises a greenhouse at the rooftop of the mart. The side of the greenhouse must be open to let airflow and the roof of the greenhouse must be a sunlight filter when it's too bright. Also, how to support the inventory of the mart by producing edible plants yearly. The rotation method might be used, divide the plantation into four areas to represent each quarter of the year. There is possibility in doing the concept and would like to be part of. The fan base community part is interesting in farmer's point of view, consumer doesn't really care much about who the creator. If this is the way to accomplish that, it would secure farmer's occupation.

### Urban Farmer "B"

- Background: Food and Nutrition at Kasetsart University
- Date: 25th May, 2017
- Time: Around 14:00
- Place: At "Grandpa Urban Farm"
- Quote: "Expanding knowledge of urban agriculture to urbanite is my ultimate goal"

Urban Farmer "B" is the daughter of Urban Farmer "A" age around 25, inheriting the inspiration of living in sustainable lifestyle in city from her father, make her wanted to lend a hand. She explains that normally she grows variety of edible plants according to season. Such as growing salad vegetables in winter season. Her growing intention is to feed her family member more than selling it to others. There are vertical gardens, an alternative method for urbanites living in apartment in limited space, to grow in containers and hang vertically. It uses

natural method in growing in compare with artificial method of hydroponic. Further she use earthworm excrement and natural leftover such as banana peels to add nutrient for soil treatment. In protecting pollution, she grow tall tree or vine tree as a fence of the garden to collect substance like lead from entering the inner edible garden. Another way is to raise the soil higher than ground level, into bed shape. This will prevent heavy particles from car's pollution to entering the soil.

After explanation of the concept and in-store simulation. She interested in the concept from studying about food and nutrients, her knowledge could help in introduce consumption to urbanites with joyful experience. She recommend if the plantation is on the rooftop, the main worries is the airflow, therefore don't put your mart near sky train. Also, vertical method to grow more edible plant on rooftop but be careful of the arrangement, plant on top of each other might block each other sunlight. There are potential is making this concept real and expanding urban farmland. The worries might be how to grow variety and quantity that could support urbanites.

### Urban Farmer "C"

- Background: Member of Bangkok Urban Garden Community
- Date: 3rd June, 2017
- Time: Around 15:00
- Place: At "Bangkok's Food Journey" event
- Quote: "Integration of animal into urban farm, could procure it's longevity"

Urban farmer "C" age around 30, open a booth at "Bangkok's Food Journey" event to share her knowledge about rewinding to recover in urban areas. Her goal is to return green space and reconnect nature into urban areas. Her interested in urban farming come from animal. She explain that small animal could add on to the ecosystem of urban farm. Such as butterfly and bird help pollinate edible plant into the plantation. Also, some animal could help fertilize the soil such as worms. Urban farming with animal could maintain it's healthy ecosystem with little human interference. Therefore, modern method of hydroponic takes away this important factor.

After explanation of concept and in-store simulation. She is interested in the concept but a ecosystem isn't perfect if there are no support from living thing. It's

practical to grow on rooftop but to make the experience more interesting addition of small animal could attract urbanites to use the services. In a way, when they enter, they will get the feeling of escaping urban to nature. The pro of the concept is the expansion of urban farmland, one thing if you want to create more traction in visiting the mart putting unique animal at each branch could attract urbanites. Such as putting unique small animal in mart "A" could attract urbanites to mart "A" rather than other mart. The con is if the goal of in-store design wants to mimic nature, integrating animal should be consider.

### 3.8.3 Short Summary of Feedbacks

Overall, the feedback from both urbanites and urban farmers are positive. Most of them concur with the concept and in-store design being able to practice in Bangkok, Thailand.

1. Favour picking edible plant by themselves in urban areas new and trendy experience and represent best quality.
2. Three Services of "Pick Your Menu", "Pick Your Salad" and "Pick Your Edible Basket" attract both male and female, in group or individual to visit.
3. Credential farmers assisting to select, is their helpful companions.
4. Trustworthy come from clean and neat in-store and shelf design.
5. Information from signage help in making decision to select.
6. Being selective for best quality and can buy edible plants in the quantity corresponding to the usage of that day.
7. Re-visit from urbanite is beneficial to farmer occupation because of farmers loyalty.
8. Farmer do what they do best of growing and let harvesting, done by urbanites.

Still, there are also many hints from both urbanites and urban farmers to further consider and refine the concept:

1. Consideration of business model is required because pricing could be mind changing factor.
2. Providing variety of edible plant and other products, such as meat, is important.
3. Addition of on-line service could serve urbanites wanted to eat fresh quality produce without experiencing the picking alone.
4. The small mart size could create unsatisfactory for visitors.
5. Location and method of growing must consider the airflow and sunlight.
6. Planning and management to grow edible plant for yearly quantity should be consider.
7. Integrating small animal in urban farm will create perfect ecosystem.

### **3.9 Concept Summary**

Overall, the fieldwork feedbacks are positive from both urbanites and urban farmers. Most of the urbanites favor about the design concept and rapid prototype. On the other hand, urban farmers are interested in joining the concept and verify concept is practical in Bangkok, Thailand. The feasibility of design concept and rapid prototype from both urbanites and urban farmers, affirm to proceed on to developing and making of prototype to test upon urbanites in individual, couple and group at Bangkok, Thailand.

# Chapter 4

## Evaluation

In this chapter, the evaluation methodology and prototype creation is discussed. The test on feasibility of prototype is conduct. Where the evidences collected will demonstrate "Pick Your Organic Mart" shopping experiences potentially being practical with urbanites in Bangkok, Thailand.

### 4.1 Methodology

Prototype test phase, is testing with urbanites to observe interaction and to gain real feedback. Urbanites will be tested in individual, couple or family with different background. The reason behind is to optimize feedback in realization of need and want of the prototype, signage and experience. The result will show feasibility of shelf design into real world.

#### 4.1.1 Prototype

The prototype aims to study urbanite's behavior and interaction of urbanites with edible plant on design shelf. To understand overall experience urbanite's gain from three service provided by "Pick Your Own Mart" concept.

#### Shelf Design

In corresponding to middle shelf model simulated in "Sketch Up", the similar shelf design called "Algot" was found at IKEA. Later on, used it and modify the size according to numbers of plant fully grown with added detail of display content. The left photo (Figure 4.1), show the shelf size and zigzag level layout. In front view, the shelf height is around 200 centimeters, width is 60 centimeters and length of each level is 30 centimeters. In total, there are four levels with around 25 edible plant in this shelf. The right photo show the overall capacity of each



Figure 4.1: Prototype

level, holding around five to six plant pot with display content. The shelf design is adaptive, where each level can be adjust in height accordance to plant sizes.

### Edible Plant Placement

The significant of this prototype is edible plant placement, how to display the edible plant pot in delivering clear understanding about what and where to harvest right produce. In this shelf, the reasonable approach is to group edible plant into category such as vegetables, herbs and fruits. For each level will contain only group of edible plant from that category (Figure 4.2). In categorizing, urbanites can easily find what type they are looking for. For instance, urbanite intended for "Pick Your Menu" service, are prone to search and harvest at vegetables and herbs level, "Pick Your Edible Basket" would harvest at vegetables and fruits level, and "Pick Your Salad", are likely to only harvest at vegetables level. After finding the right category and it's shelf level, urbanites could learn more about produces through display content.



Figure 4.2: Shelf Level



Figure 4.3: Toolkit for Three Services



### Harvesting Tool Kit

The harvesting tools kit was bought to enhance real experience (Figure 4.3). On the left, tool are provided, and to choose from when harvesting. The purple basket is particularly for "Pick Your Edible Basket". On the right, in assuming of directly eating the salad vegetable from dirt would be dirty, the tools kit for only "Pick Your Salad" was made. In this tools kit, there is a bucket with clean water for washing the dirt and cotton napkin to dry and salad dressing in container to dip. The tools kit is prepare in case of usage but aren't mandatory.

## 4.2 Test Structure

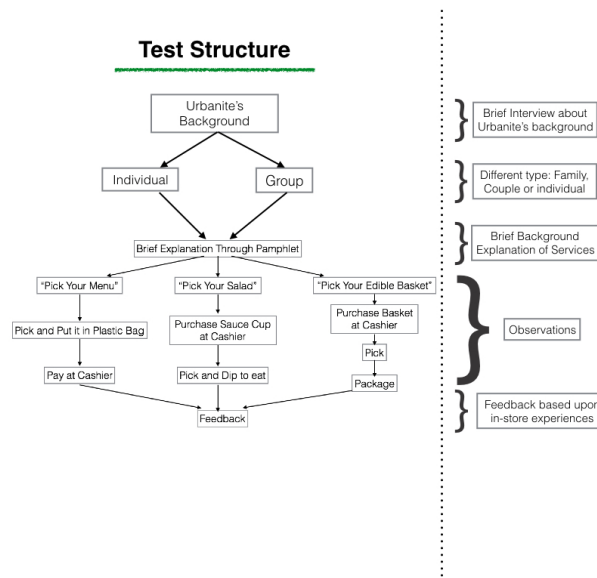


Figure 4.4: Test Structure

This prototype test (Figure 4.4), is set up at the backyard of a house in "Chichakorn" neighborhood. The test take three consecutive day to accomplished. Around 20 urbanites, both male and female age ranging from 20 to 60 live nearby, are invited in person to test.

At a location, where the prototype couldn't be seen, urbanites are interviewed for brief background before testing. Glimpse of in-store design are shown to help clarify about the in-store environment. Then, urbanites will be briefly explain about three service through pamphlet in personally or in group.

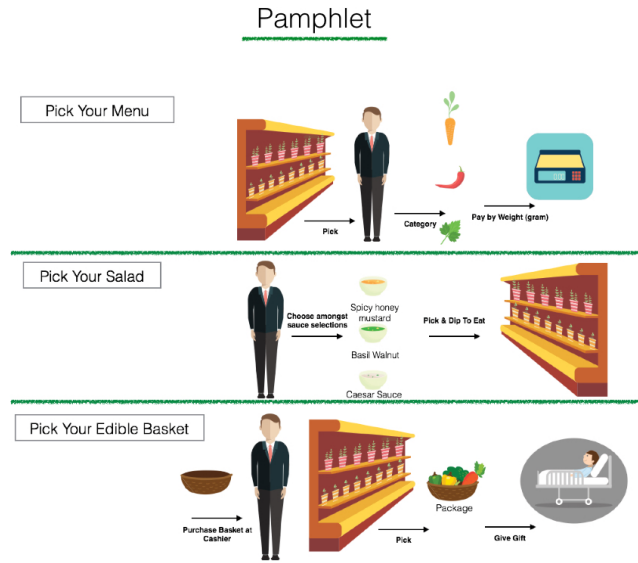


Figure 4.5: Pamphlet about Three Services

At prototype setup location, urbanites are direct to choose the service and tool they wanted to be tested. Then, while they are testing, researcher will observe and photo to document their interactions and reactions. Afterward, informally ask for their feedback based on their experience.

### Explanation by Pamphlet

The pamphlet elaborate on the procedure of three services (Figure 4.5). The explanation goes accordingly. "Pick Your Menu" is for urbanites who intended to buy produce to cook. They can pick their desire produces and put it into plastic bag. The rule is one bag per one kind of produce, don't mix it. The plastic bag with produce inside will be weight and charge according to it's category price. "Pick Your Salad", urbanites will buy the salad dressing in different size container and walk to only salad zone to pick, dip and eat the produces. "Pick Your Edible Basket", urbanites could choose the basket, and walk around to pick until the basket is full. Then the mart will package the basket for your love one.



Figure 4.6: Test 1

## 4.3 Test Result

### 4.3.1 First Test

All of urbanite's name tested are classified. The first test of prototype was on 26th May 2017, around 14:00 onward. Around 10 urbanites is invited in person for the test. The test result is divided into two session for:

#### First Session

For the first half of the test five urbanites are being tested in form of family group of four and two individually one male age around 37 and female age 26 (Figure 4.6). As for group testing of family, all of them choose to wear glove for safety reason. Members of the family will lend in a hand to help pick up the best quality. The son age 12 and daughter age 14 tries to point out which and where to pick or to cut. Both of the kid tries to walk around quickly and take a look but are afraid to pick by themselves. They would called upon their parents to ask about what it is and if they found something interesting, they just play with the edible plant. The parent both age around 50, have to guide them in picking and cutting. Mostly, the duty of picking are their parent.

Immediately, after the test, the family was informally ask about their experience. The mother say it was a fun family experience, but how to control about the safety of picking from consumer is important. The father is positive with the experience, combining picked preferable edible plant from each family member to make a menu is the fun part. The son and daughter say from picking directly from the plant make them feel like farmer. The produce is safe and fresher than supermarket. Overall, it could be a family activity in relationship building and educating because the service promote communication amongst each other.

For individual test from both male and female. Both of them didn't wear glove because they wanted to touch the texture of the plant. The male would walk around first to see which one he wanted to pick and look fresh. Then he use his bare hand to dash on the plant to find the produce he wants. Also, usually he pick from the top of the plant. For the female, she would walk close to the shelf searching what to pick but didn't touch the plant itself yet. If she find what she wants, then she uses scissors to cut out. If it's was herb, she would cut out individual leaf only, not from the stem.

After the observation, individually interview about their experience. The male say that it's new to him and the positive part is that he could really choose the best produce with quantity he wants. The female feedback say that she like the experience, as her family was farmer before and this bring back to the moments with her father in plantation. She suggest that the edible plant itself is the display. If the appearance of edible plant look decayed, the satisfaction of customer might be low. The management in rotating newly grown edible plant needed to be consider.

## Second Session

Continuously, two couple were invited to test (Figure 4.7). First couple both of them age around 50, communication between both of them make the experience more delightful. They choose "Pick Your Edible Basket" service. Individually, they walk around to search and pick what edible plant means to them. The male before picking, read the signage for information about health properties and start to pick. After picking they insert the produce into the basket that the female is holding. Sometimes they switch duty, of holding and picking. They are selective and cut from the stem of the plant. Mostly, they pick only produce from eye level. For the second couples, they would walk closely to each other. In choosing, both of them suggest each other on which to pick from what edible plant. They would



Figure 4.7: Test 1-1

often communicate with each other, and sometimes when they are not confidence in the harvesting method of the produce, they would skip. The male would closely look at the plant first before picking.

Later on, feedback of their experience were asked. Both of the couple felt that they can choose from what really fresh and chemical free. As for the first couple of picking gift, they say it's a n interesting service as you can select what is meaningful and healthy. Also, it very enjoyable when you go with you love ones. The second couples say that, picking could be troublesome, because both of them don't have the knowledge of harvesting. It would take a lot of time for both of them to pick all of the ingredient they wanted. Also, variety of edible plant need to be first priority. If there are just edible plant that supermarket have, they would go to supermarket.

### 4.3.2 Second Test



Figure 4.8: Test 2

All of urbanite's name tested are classified. The second test of physical prototype was on 27th May 2017, around 17:00 onward (Figure 4.8). Three urbanites was invited to individually test the physical prototype. There are one male, age around 50 and two female both age around 27. The test took 10 to 15 minutes for each person. Through observations, both male and female are being selective in choosing the best quality. One male try to smell before he pick up. Even, he pick out one herb leaf and taste it before he chooses to pick from that edible plant. Some are not confidence and try to ask the researcher where to cut or how to pick. One of the female, uses scissor to cut the eatable part of the plant instead from the stem. She was asked afterward and reply that she pay by weight and by cutting the whole stem, added weight and cost more. Most of them look at the signage for information after interacting with the edible plant. Also, most interaction come from the middle and upper shelf, the bottom shelf seem to have less interactions.

Afterward, each urbanites are informally interviewed about their experiences. Most of them recognize the types and freshness of picking produces directly from





Figure 4.9: Test 3

the plant and know what menu can be cooked. Also, it's a fun experience to come with a friend rather alone. One female say it's trendy to current situation of being health conscious. She wanted to take photo and upload to social media to share her experience. If there is a service inside the mart to make visitor cos-play as a farmer, it would be more interesting. On the other hand, male suggest to group the edible plant into a menu, therefore it would be easier to pick or making a checklist of ingredient on paper and road map on how plus where to pick. Taking into account of all feedback, urbanite received a positive experience from the test.

### 4.3.3 Last test

All of urbanite's name tested are classified. The third test of physical prototype was on 28th May 2017, around 13:00 onward. Around eight urbanites are tested. In addition, there are new placement of salad vegetable to further test about "Pick Your Salad" service.

The first couple to be tested contain one female age around 35 and her son age 2 years old (Figure 4.9). She was given the tool kits especially for "Pick Your Salad". Some of the vegetables are in dirt and are not transparent to be selective.



Figure 4.10: Test 3-1

Such as carrot, she could only pull out the carrot and have to eat it , even though it look bad to her. Therefore, she couldn't choose the vegetable from appearance. After picking she would clean the carrot in water and dip it into the salad dressing to give it to her son and also do the same to her. After the test, she say that the experience was fun but her son was running around all the time because she doesn't have a hand to carry him. Also, the vegetable looks fresh but some types of vegetable need to be cut before eating, there should be more tools or assistance in doing so. This my cause conjunction when there are a lot of people inside the mart.

Individual test from one male and one female was observe (Figure 4.10). Male age around 28, chooses to pick his own salad. He skim through the shelf to see search for what he wanted and pick up the vegetable, wash it and eat it. If he couldn't finish the produce, he throw away the leftover in the basket. Sometime he even stick back what he pick up back to the pot. For female age around 40, she gently use her finger to skim around at the cabbage to find the best appearance leaf. If it's at the inner layer of the cabbage, she still try to pull it out. Sometime she didn't dip the vegetable in the salad dressing. After ward, feedback form both





Figure 4.11: Test 3-2

of the individual is address. Male say precaution about safety issue of picking is needed such as people before him might put something dangerous inside which he didn't know before, but unfortunately he pick up vegetable to eat from that pot. Female say it would be more pleasure, if there are more variety of salad vegetable to choose from and some tools to help cut or slice vegetable into pieces because she wanted to combine what she pick into salad bowl. Also, if expiration of you service depend on finishing the salad sauce. Consideration on some people that eat their vegetable without dipping to stay long hour is needed.

Lastly two couple were invited for the test (Figure 4.11). One of the couple choose "Pick Your Salad" and another couple choose "Pick Your Edible Basket". For the first couple, they start searching for the salad vegetable by walking closely together. After the female tasted the carrot and she found it's sweet, she told the male to pick up and try it. Also, the male tend to pick up what he want and put it inside the basket all at once. Later he clean the produce and start eating. The female walk around and pick one by one to clean and dip to eat. The second couple choose "Pick Your Edible Basket". They choose the produce from appearance. When they pick up undesirable appearance, they put it back on the shelf.

Afterward, both couple give feedback about the experience. They say it's new for urbanites living Bangkok. To eat and pick directly from the plant guarantee produce as being fresh and chemical free. This could be fashionable, if there are no new experience continuously added-on. Regulation should be added in protecting what is pick up and wanted to be return. Edible plant display is the marketing itself, the importance is how to make it look fresh and new all the time.

## 4.4 Summary

Overall, observations and feedback from prototype testing is positive. Majority of urbanites understand the concept and are favorable to the shelf design, signage content and shopping experience.

Here are insightful observations during testing. First priorities, urbanites look and make contact with edible plants before viewing signage for more confidence. As for shelf level in eye level and upper is mostly picked. In harvesting process, tend to touch and smell a lot on edible plant. In addition, Most of urbanite start picking from the top to bottom of the plant. Mostly, Urbanites cut off only eatable part. Such as the herb leaf and not from the stem. Therefore appearance of edible plant itself is the display which is important. Should provide variety types and fresh for better marketing. As reviewed, experience with companions and in a group, depict more enjoyment from sharing and communication.

Regard to subjects after test interviews, these are some key feedbacks from them. Majority claims the experience is trendy, They would like to take photo and upload it on social media. They felt like being a farmer for that moment. Adding on, best part is to choose best quality and quantity. Also, there are some unsatisfying factor because some of the plant look like they are dying not fresh. Which affirm the importance of maintaining fresh appearance of edible plant. Furthermore in harvesting process, if there is menu grouping, or paper with checklist of ingredient to pick it would be more easier.

In term of group and couple, it's great recreational activities for family. By combining picked edible plant from each member of family, a creative menu is discovered. The communication make the experience more delightful. Adding on, Talking with each other, boost confidence in picking the right edible plant. One safety factor to consider, coming as family is children running and play around all the time.

For "Pick Your Own Salad", some state it's great service to eat from tree,

but some vegetable need to be cut before eat. The experience is favorable but felt unsatisfied when picked up nasty appearance edible and don't know how to return it. Lastly, eating one vegetable at a time doesnt feel like eating salad dish.

# Chapter 5

## Result and Discussion

### 5.1 Conclusion

Overall subject embraces the concept and with positive outcome towards prototype to be feasible at Bangkok, Thailand. "Pick your Organic Mart" concept was proved to be interesting and achievable by fieldwork's result from five urbanites and three urban farmers in Bangkok, Thailand. The result from urbanites pointed out it's trendy concept because right now every age level and both sex orientation are health conscious. It's a new experience to harvest their own produces nearby and could be an alternative medium from health conscious urbanites apart from supermarket and grocery store. By picking their own edible plant grown naturally by farmers bring them more confidence in the quality of the produce. The three services provided of "Pick Your Menu", "Pick Your Salad" and "Pick Your Edible Basket" attract both male and female in different age level or coming in groups or individual.

The evaluation prove to bring authentic and immersive experiences to urbanite living in Bangkok, Thailand. The result of around 21 user's tests show enjoyment and entertaining in harvesting from the designed shelf. The experience of three service of "Pick Your Menu", "Pick Your Salad" and "Pick Your Edible Basket" prove strong points and combining it together, make the mart complete. The three service are favorable from both sex orientation and age level range. The study also shown, coming in group and couple elevate the experience with communication and sharing more than individually visiting. The appearance of edible plants is the main display of the shelf and the shopping experience is the marketing. If the appearance look decaying and brownish, it will bring unsatisfactory to consumers. In the future, looking forward for further research areas and refinement to complete and actualize "Pick Your Organic Mart" need to be considered.

## 5.2 Design Limitation

This research found a few limitations during the process of creating physical prototype for testing. This section will provide suggestion on overcoming for future test. Firstly, decide the location of the test, the location that was chosen for this physical prototype test doesn't correspond to the in-store simulation design. The size of the space and atmosphere matter to the result of the test. As for to grow the plant take one to two month period in advance. Secondly, shelf design and amount of shelf needed should be consider beforehand. To calculate the capacity of the shelf, and to know amount of edible plant to grow. Thirdly, should contact with users and give approximation of period of testing. It's difficult to decide when to test while using living edible plants as main components for test. Therefore, planning ahead the testing date is critical. As for the harvest period for ripe produce couldn't be determine. If your time is limited, make mock up from buying fake plant and put it in plant pot to look realistic could be a solution.

## 5.3 Future work

Even though, the concept and physical prototype prove new shopping experience to be feasibility, discovery of opportunity for revision and development is found. This section will address future ideas to optimize practicality in real world. Here are some suggestion for short term:

1. Adding in more shopping experience services, and weekly event could attract more urbanites usage and longevity.
2. Provide re-designed real harvesting tool that enhance the shopping experiences.
3. Re-design and provide more shelf containing variety of edible plants.
4. Design more signage to assist in harvesting.
5. Bring in real urban farmers to assist in harvesting and shopping experience.
6. Regulation and management is needed to cope with returning picked produces.

Here are suggestions for making it actual in the longterm:

1. Tests and observation of urbanites from other provinces of Thailand rather than Bangkok is needed.
2. Tests and observes urbanites from other country of the world rather than Thailand.
3. Taking business model into account will provide supported management and financial data to make it practical.
4. Contact and coordinate with owners of vacant urban areas to make possible for urban farmland.
5. Bring in more variety of product, not just edible plant, to provide a one stop service.

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