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Theme 1:

ALPS "safety and security" theme title: Real Time Chemical Detection

Proposer Organization's Name: Atonarp Inc.
Supporter Name and contact info: Tomoyoshi SATO / tomosat@atonarp.com
Prakash Murthy / prakash.murhty@atonarp.com

ATONARP

Abstract of your project theme :

<Back Ground>
In the past years Free Economics shows us rapidly growing like Google or YouTube. We're seeking the next Google model and new business model to bring much more impact.

Over today's Internet high speed searching engine is working pretty well but it expects text base input. When you bring unknown material to there, it cannot bring us any information at all without some text base inputs. Some missing link is existing over today's Internet. We're providing new method of Real Time Chemical Detection (RTCD) into new society at much compact and very low cost that can be implemented on iPhone or smartphone. It will be common for lots of apps and devices.

1) How can Real Time Chemical Detection (RTCD) change the current world into much more secure world?
2) By using RTCD new business over Internet can be possible like breath monitoring that can identify deceases or health condition, location awareness security system or new advertisement system to introduce wine, perfume or the other products. How about the next killer apps to overcome Google?
3) Once RTCD becomes common, what will be the next issues to realize much more secure world? What kind of apps can be more important or possible as the next killer apps on iPhone or smart-phone solve and what are still remaining issues as the next problems to realize rapidly growing?
4) The best case scenario: The RTCD are accepted for the future society.
    Most important point and strategy?
5) The worst case scenario: The RTCD are rejected for the future society.
    What kind of reason can be fatal or difficulty to make big success?
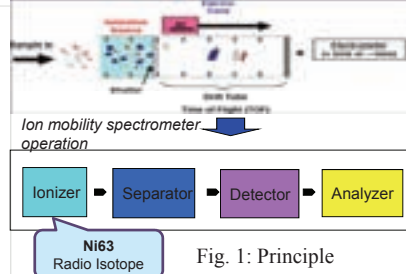6) What is the most cost effective solution for secure world and why the next technology is needed to make it?

Ion mobility spectrometer operation
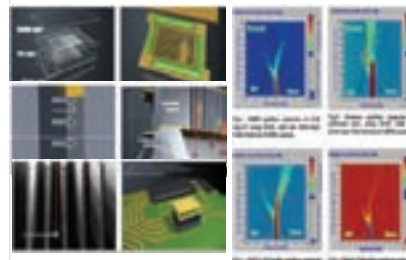
| Ionizer | → | Separator | → | Detector | → | Analyzer |

Ni63 Radio Isotope

Fig. 1: Principle

Fig. 2: Features

Theme 2:

ALPS "safety and security" theme title: Design of Seamless Positioning Platform

Proposer Organization's name : GNSS Technologies Inc.
Supporter Name and contact info: Makoto Ishii ＜ishii@gnss.co.jp＞www.gnss.co.jp

Indoor 屋内 IMES

IMES

Under Ground 地下街

Abstract of your project theme:

【Background】
・GPS has become standard device for mobile phones
   Number of GPS-enabled mobile phones has been increasing(up to 60M units), driven by E-911 in the U.S. and the similar legislation for emergency calls in Japan.
   Also, GPS is becoming standard device for mobile PC, consumer electronics(CE).
・Rapid growth of **LBS**(Location-based Services), **LBA**(Location-based Advertising) market
・Joint development of indoor GPS =IMES with JAXA(**IMES**, **I**ndoor **ME**ssaging **S**ystem, is a small transmitter which enable indoor positioning by transmitting GPS-like signal. LSI is under development for the realization of low cost and downsizing.).

【The Issue of IMES-based Position for Safety & Security Applications】
・Guarantee of position information to be used in emergency calls(110, 119)
・Security of position related information(public position information, private position information, etc.)

【Expected Theme for ALPS】
IMES is unique indoor positioning technology invented in Japan and we must develop it to become a social infrastructure for location related services. For this purpose, system design as platform is important. System design includes wide range of consideration in terms of cooperation with government organization for emergency calls, development of business model to promote the installation into various facilities, cooperation with LBS and LBA service providers, standardization of transmission messages, safety and security assurance.

【Target – Example of Application Services】
・**Large shopping malls**- service to allow safety shopping with children, digital signage, etc.
・**Large terminals such as stations and airport** – appropriate information and guiding services based on his destination even for first visitors.
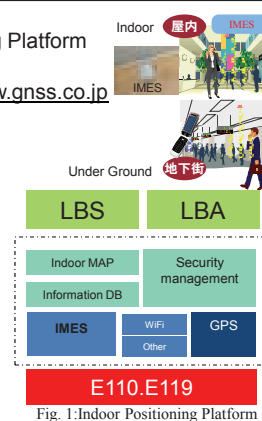
| LBS | LBA |

Indoor MAP	Security management
Information DB	
IMES	WiFi / Other	GPS

E110.E119
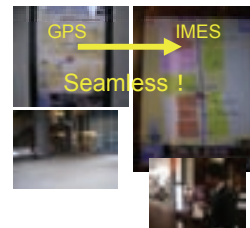
Fig. 1:Indoor Positioning Platform

GPS → IMES
Seamless !

Fig. 2:IMES Demonstration From Outdoor to Indoor

Theme 3:

ALPS "safety and security" theme title: **BCP**(Business Continuity Plan) for a Port after Earthquake Disaster

Proposer Organization's Name: ___JFE Engineering Corporation___

Supporter Name and contact info: Kenichi MURANO , murano-kenichi@jfe-eng.co.jp

Abstract of your project theme :

・How to improve port infrastructure after earthquake disaster in order to maintain lifeline

・From standpoint of total safety of a **Port SYSTEM**, consider the method of improvement of optimized specifications for each infrastructure to provide for earthquake.

・Business Continuity Plan: To keep port functions after disaster under short resources: such as human, electric power source, etc.

Example:http://www.skr.mlit.go.jp/pres/h21backnum/kouwan/100128/bcp.pdf

Fig. 1:Port Damage in Kobe 1995

Theme 4:

ALPS "safety and security" theme title: Red Rescue Project

Proposer Organization's Name: NTT DATA CORPORATION

Supporter Name and contact info: Tetsuya KUSUDA <mailto:kusudat@nttdata.co.jp>

Abstract of your project theme :
Red Rescue Project aims to develop a solution for real-time disaster response by sending alert messages to GPS devises such as PCs, PDAs, mobile phones and car navigation systems and showing flexible action menus depending on situations using small-capacity data from satellites and the receiver's location information. Our target media is QZS (Quasi-Zenith Satellite), the first Japanese positioning satellite, which will be launched in summer of 2010. We have started prototyping experiments on IMES (Indoor Messaging System) environment at Kyoseikan, Keio University. Red Rescue Project is a 3-year research project funded by MEXT since 2009. This project consists of NTT DATA(the main contractor), Asia Air Survey, PASCO, Keio University and SPAC Committee members. The project name derives from "Real-time Disaster Response using Small-Capacity data from the UniversE."

**Challenges:** (but not limited to)

・**User interface design**
  Safe and secure message design is needed for effective communications at disasters using location-based disaster management system.
  - Inducing effective actions at disasters using location information
  - Switching the normal mode and the emergency mode
  - Simple and easy messages and usages for elderly, children, etc.
・**Business model design**
  Disaster management is a highly-public field with many stakeholders.
  Sustainable business model is required.
  - New profitable location-based services at disasters
  - Revenue from other location-based services available at the normal period
  - PPP schemes
  - dual use of the communication media to reduce the cost
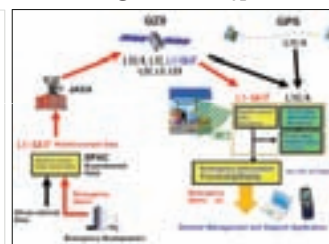
QZSS Experiment Environment

Source :
  SPAC (Satellite Positioning Research and Application Center)
  http://www.eiseisokui.or.jp/ja/pdf/forum_06/forum_06-09.pdf

Prototyping systems on IMES Environment

Left : Action menus are displayed, for the experimental use.
Right: 3D contents in Kyoseikan are available.

Theme 5:

Theme title : **Mobility Interactive System Design & Management**

Proposer Organization's Name : **SUZUKI** Motor Corporation

Supporter Name and contact info : Takashi **Hayashida** (the0116@a8.keio.jp)

Abstract of your project theme :

Safety & Security is one of the biggest theme for mobility all the time. For example, Air-bag, Anti-lock brake system, Vehicle Stability control…etc. In the near future, the more important thing is software. For example, Navigation, Road services, and Interactive-communication (- Blinking the hazard lamp of the traffic jam to the rear driver) But there is not unified inter-communication system in the transportation field.

Benchmark image

・iPod & iTune system for the music business

・iPad & iBook system for the publishing business

Just image example

About 5 years later, at India, German, Japan…worldwide, with Navi, Cell-phone, iPad…any-device, it's application (like Car-twitter include HMI & Business model) for interactive communication of short mobility. [not limited]

For driving future with safety & security, we expect big solution for all customers on the road.

We hope many Sky-high ideas & Enjoy ALPS!

ALPS2010 "safety and security"

Theme 6:

ALPS "safety and security" theme title: Concentrated Solar Power

Proposer Organization's Name: Delft University of Technology, the Netherlands.

Supporter Name and contact info: dr.ir. Gerard P.J. Dijkema

Theme Abstract:

Who – Japan at large

What – secure, safe sustainable electricity supply

Where – part of the assignment

When – part of the assignment

Why – ensure long-term security and sustainability of electricity supply in Japan by reducing dependency on foreign fossil resources; reduce Japan's CO_2 footprint

The CSP assignment involves design and development of large-scale energy infrastructure, and is strongly related to local geography, water management;

It requires large-scale system design, suitable governance, selection of site(s), embedding in Japanese institutions and advanced program and project organization.

Fig. 1: PV with Fresnel concentrators

Fig. 2: Solar Two, Mojave Desert, US

ŤUDelft

Theme 7:

Theme title: Providing of safe plastic food containers

Proposer Organization's Name: ASKA COMPANY
Supporter Name and contact info: Yuji Miki AskaCompany sales office osaka
E - mail: yuji-miki@askacompany.co.jp Tel：0726-24-3138

Abstract of our project theme :
We, at ASKA COMPANY, manufacture and sell plastic food containers
to distributers such as Glico and Nestle of Japan.
Recently, with increasing environmental awareness, we have focused
our efforts to produce thin and light plastic food containers.
With these modifications, the mechanical properties such as brittleness
and strength become increasingly important. However, we were unable
to find any safety standard or mechanical testing instrument for plastic
food containers on the market.

There is risk of cracking
Container production process , Process of filling the contents,
Transport and When consumers eat
How to reduce the risk of cracking?   Design? Resin Selection?

＜Key Words＞
More thin and light plastic food containers
Tolerable from the expected shocks

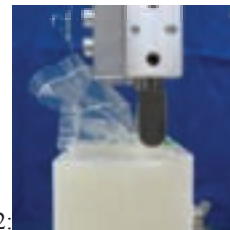Fig. 1: we have developed a line of instruments

Fig. 2: Evaluate the property of crack

Theme 8:

ALPS "safety and security" theme title: Brand image creation of safety and security

Proposer Organization's Name：adidas   Supporter Name and contact info：

There are many activities to define "safe and secure" in sports industry.   Here are two typical activities to make consumers feel "safe and secure" about sports brands.

1, Producing products which prevent injures
2, Creating activities which are directly connected to sports that lead to healthy lives

However, we are not expecting to have such proposals.
We, as a brand, must consider the ways of how to make consumers feel "safety and security " all the time other than doing above mentioned activities.
We understand that this is not an easy theme to consider, but we strongly expect new approaches we are able to implement in the future.
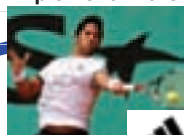
Theme 9:

ALPS theme title: **Disaster prevention system using renewable energy**

Proposer Organization's Name: Kokusai Kogyo group Infrastructure Innovation Institute, Inc.

Energy security in an afflicted area

The security of energy is important in our safe life, and emergency too. At present, disaster prevention system is settled on only using conventional fossil fuel as a most reliable way.

At present emergency electric power system

However, In case of emergency, is there a positive proof where it works?

Risk factor

- Running out of the fuel stuck due to the collapse of supply system
- Absence of an engineer to be able to operate the electric power system
- Lack of alternative energy sources

The characteristic of renewable energy straighten out that problem !?

Point

- Not only for emergency, but for everyday
- Analysis of beneficiary's demand and renewable energy
- Operating risk and risk management
- Development of anti disaster city with Community Participation

For reference

- An assumption field ex. a urban like a ward of Tokyo ,Yokohama
- Observation of a real case ex. MEGA-solar power plant
- URL: http://www.kk-grp.jp/

Fig. 1: stakeholder

Characteristics of renewable energy		short-term		long-term	
		conventional	Renewable	conventional	Renewable
	operational performance	△	○	△	○
	adjustment capacity	○	×	○	×
	logistics of fuel or resource	○	○	×	○
	running cost	×	○	×	○
	initial cost	○	△	○	△
	emission	×	○	×	○
	CO2 emission	×	○	×	○

Fig. 2: *Characteristics of renewable energy* and *period for recovery*

Keyword : Renewable energy, Energy efficiency, Environmental analysis, Overseas Development

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Theme 10:

System design for dissemination of "Careful driving training for senior drivers "

Proposer Organization's Name: Tokio Marine & Nichido Risk Consulting Co. Ltd.(TRC)

Supporter Name and contact info: Noriyasu Kitamura <n.kitamura@tokiorisk.co.jp>

【The contents of the theme】

On the basis of fundamental researches of "careful driving training for senior drivers", We perform the systems design that how work the results of research into social infrastructure such as car insurance products, a driver's license system, the self-culture for senior citizens.

【Fundamental researches】

- I investigate a weak point in the careful driving of the senior driver by TRC and make a training hypothesis.
- I join a Nishimura laboratory "driving simulator" to Ogi laboratory "devotion type three dimensions projector system" and demonstrate them in real driving environment and develop appropriate training software.

【A point to study in ALPS】

The study is based on marketing researches and performs the systems design that I continue careful driving training routinely and can perform although an senior driver is a pleasure.

（1）The training which an senior driver is easy to receive most
（2）A device of the training that an senior driver can enjoy and consideration of effective incentive
（3）It is devised the training system to be able to incorporate it in life without an senior driver getting tired
（4）We consider how I perform the fusion with the social infrastructure such as automobile insurance, the driver's license system
（5）We will think how is the self-culture which a senior citizen likes in future. And We I consider how We perform fusion with the careful driving training.

Theme 11:
Social system design for accelerated disaster recovery

Tokio Marine & Nichido Risk Consulting Co. Ltd.(TRC)
Harumi Yashiro <h.yashiro@tokiorisk.co.jp>, Ryu Miyamoto <ryu.miyamoto@tokiorisk.co.jp>

Recent earthquakes highlight the issues that accelerated disaster recovery needs not only hardware side but also software side like a local economy.

Example issues:

1. Sluggish of self & mutual help
2. Conflicts of interest
3. Local economy
4. Allocation of support by government

Planning for Post-Disaster Recovery ; there is a need for governments to issue previously described.

Key Words :

✓*DCP (District Continuity Plan）*

✓*Grand Design for disaster reduction*

✓*Resiliency*

Human damage:

Death Max **11 thousand**

Refugees Max **7 million**

Economic losses :

Direct loss：66.6 trillion

Indirect loss：45.2 trillion

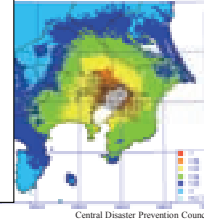Total losses：**111.8 trillion**

Central Disaster Prevention Council

Fig.1:Earthquake damage estimation
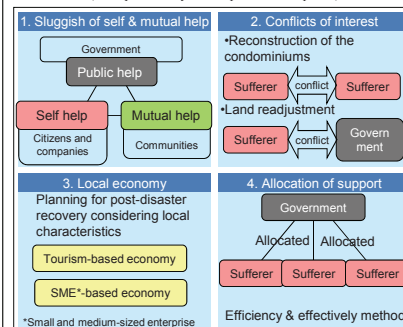(Example of Tokyo Metropolitan Earthquake)

Fig.2:Example of disaster recovery issue

Theme 12:
ALPS "safety and security" theme title: **Smart Physical Feedback City**

Proposer Organization's Name: **Toshiba Corporation with Shimizu Corporation**
Supporter Name and contact info: Naoshi Uchihira (naoshi.uchihira@toshiba.co.jp)

Abstract of your project theme :
How do Mono-zukuri companies survive competing against Google? Physical feedback is the key issue!
Recently, cyber-physical systems are becoming very important which gather information with the sensor network, process them, and then give useful information (*virtual feedback*). However, few systems give useful physical services with actuators (*physical feedback*). In this project, future vision, concept, and application of smart physical feedback city are requested to make cities safer and smarter with physical feedback. Moreover, service business strategy for Mono-zukuri companies to compete against Google in the future virtual and physical feedback world is very interesting. *This project supported by a physical device company (Toshiba) with a construction company (Shimizu).*

Examples:
• Smart energy-saving facilities in which controls air conditioners, lighting, window shades, etc. using environment sensor data (e.g. weather information) and human behavior modeling.
•Transportation scheduling system in which control commuter vehicles, elevators, robots, movable space, etc. utilizing real-time traffic flow information.
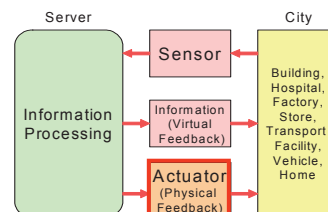•Smart operation, maintenance and patrol of city facilities utilizing haptic devices and robots.
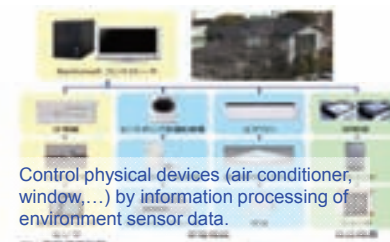

Fig. 1: Virtual and Physical Feedback

Control physical devices (air conditioner, window,…) by information processing of environment sensor data.

http://www.toshiba.co.jp/tech/review/2010/03/65_03pdf/01.pdf

Fig. 2: Example: Physical Feedback Home
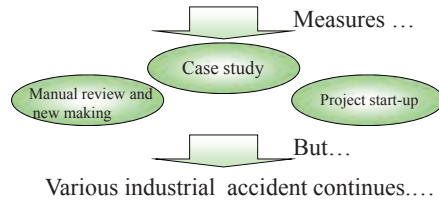(Smart Energy-saving Home)

Theme 13:

ALPS "safety and security" theme title:

Mechanism of industrial accident zero making

Proposer Organization's Name:TOSHIBA ELEVATOR AND BUILDING SYSTEMS CORPORATION
Supporter Name and contact info:Satoru Hata E-mail:satoru.hata@glb.toshiba.co.jp

The industrial accident has been happened in each elevator company.

Measures …

Case study

Manual review and new making

Project start-up

But…

Various industrial accident continues.…

The experienced maintenance man often happen accident more than beginner.

The experienced maintenance man knows work process, but not observe it.(Fig 1)

These causes are various. For example,they want to work easily and don't have a lot of working time.

Project subject

This Project aims「Safty and efficient work without accidents」.

Maintenance man

Accident!!

※P1:Proccess1

Start   P1   P2   P3   End

Standard Process

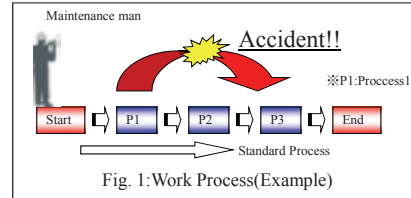Fig. 1:Work Process(Example)

Fig. 2:Elevator shaft

Theme 14:

ALPS "safety and security" theme title:

Design of Bicycle Simulator to reduce the risks of traffic accidents

Proposer Organization's Name: Toshiba System Technology
Supporter Name and contact info: Kensuke KAWAI   (kensuke.kawai@tst.toshiba.co.jp)

Abstract of your project theme :

Background : In 2009 more than 156,000 bicycle accidents occurred in Japan.
(155,581 people were injured and 695 people were killed.)
Fig.1 shows the high risk of the bicycle accidents at intersections.

Goal: To propose a new conceptual design of bicycle simulator that could reduce the risks of bicycle accidents.
Issues to be reviewed during the project:
  1) To observe the location/site with high traffic risks and record the results.
  2) To investigate and analyze the statistics of traffic accidents of bicycles including fatality of senior people (more than 65 years old).
  3)   Hearings to bicycle associations/manufacturers for safe design of bicycles now available.
  4)   To model the bicycle dynamics and to specify the process of riding-skill acquisition especially for small kids.
  5)   To discover and identify the possible risks while driving and to understand how to mitigate them.
  6)   To propose a basic requirement specification of bicycle simulator.
  7)   To review a system configuration of the proposed bicycle simulator.
  8)   To evaluate the feasibility of the proposed bicycle simulator.

Remarks: Fig.2 shows the "Safety Bicycle" in 1885.
(An appropriate project name such as "Safe Rider" are to be decided by the team.)
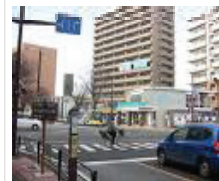
Fig. 1:

Fig. 2:

Theme 15:

ALPS "safety and security" theme title:

Cost-effectiveness Approach for Risk Management and Business Continuity Management

   Proposer Organization's Name   : JGC Corporation (Nikki)
   Supporter Name and contact info : Akira Wada, Ken Kobayashi

Although assessment methods for evaluation of risks related to natural disaster, fire and explosion, etc. have been well developed in the Oil & Gas industry, countermeasures recommended in the assessments are not implemented straightforward, because it is difficult to know cost-effectiveness of the countermeasures.

For a company, who plans to introduce Business Continuity Management, it is also crucial to know cost-effectiveness of the countermeasures.

This project aims, for example, to develop a system which can easily quantify cost-effectiveness for preparation of Business Continuity Plan for a "Company".