IoT platform and solutions

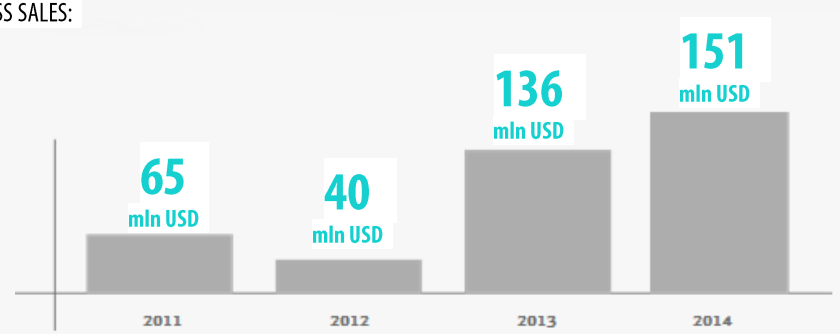
Complete ecosystem for partnership development

About INTECH

The team of over **200** high-grade professionals and innovators, who develop and advance our cutting-edge products.

INTECH combines intelligence and creativity
to develop the best products in the telecom market.

GROSS SALES:



200 000 000

of subscribers use INTECH solutions

139
completed projects

13
business divisions
around the world

60%
of staff works in R&D

30%
OF THE PROFIT
we invest
in innovation

CONVERGED COMMUNICATIONS
Video, Data, Voice products

INTERNET OF THINGS
Connectivity & M2M solutions for vertical markets

DIGITAL ENTERTAINMENT
Media Stores and Mobile Apps

MOBILE COMMERCE
mCommerce, mLoans, mTicketing and mLoyalty

MOBILE ADVERTISING
Target AD RBT, mobile APPS and mobile advertising

LABS
R&D as a service and Call Center as a service

OUR PARTNERS

VimpelCom · MTS · Rostelecom · TeliaSonera · TELE2 · MEGAFON

What is the size of IoT market?
Potentially 8 time more than size of GSM connections

There are
65 billion
'machines'
globally

Tracking and remotely monitoring a roadside digger, to minimise downtime

Your fridge ordering milk direct from the supermarket when needed

Your electricity meter delivering a reading daily, to save you money

Emergency or breakdown calls from your car, plus remote diagnostics & maintenance

Areas of IoT implementations

Utilities

- Smart management
  - Metering
  - Waste
  - Water
  - Gas

Logistics

- Goods tracking
- High value goods sealing

Consumer

- Wearables
- Home appliances
- High value goods tracking

Smart City

- Street lighting
- Smart parking

Smart Buildings

- Alarm systems
- Access control
- Heating/ AC controls

Industry

- Equipment status & management
- Energy infrastructure monitoring
- Vending machines

Potential revenue for clients' market

Manufacturing

+12.7% EBIT

Remote / Predictive Maintenance
Connected Manufacturing & Supply Chain
Knowledge Worker Productivity
Innovation & New Business Models
Connected Products

Retail

+54.6% EBIT

In-store Analytics
Checkout and Out-of-stock Optimization
Remote Expert
Physical Security

Public Sector (Civilian)

+0.5% GDP

Citizen Utility
Cybersecurity
Smart City solutions – lighting, parking

Financial Services

+16.4% EBIT

Sales & service transformation across all channels, customer touch points (remote adviser, branch recognition, mobile video)
Cloud delivery models
Pervasive security

Oil and Gas

+57.6% EBIT

Recovery Efficiency & Lifting-Process Automation
Remote Monitoring
Drilling Optimization
Project Planning
Oil-spillage Control

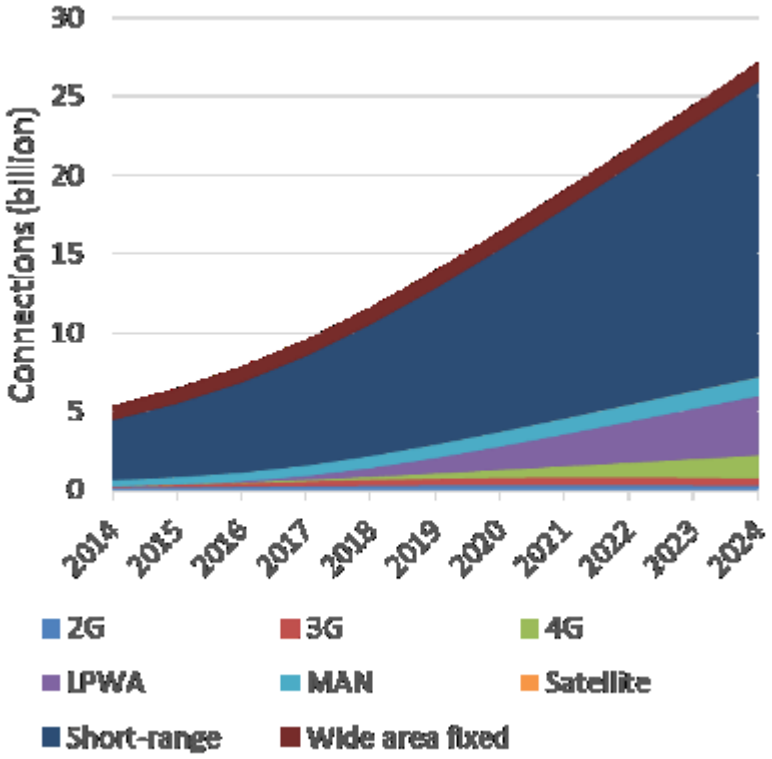
Utilities

+6.8% EBIT

SmartGrid:
Demand response monitoring, Smart metering
Electricity theft reduction
Reduction in transmission and distribution losses
Fault detection automation

Growth will be rapid - to 27bn in 2024

Global IoT connections 2014-2024 by technology

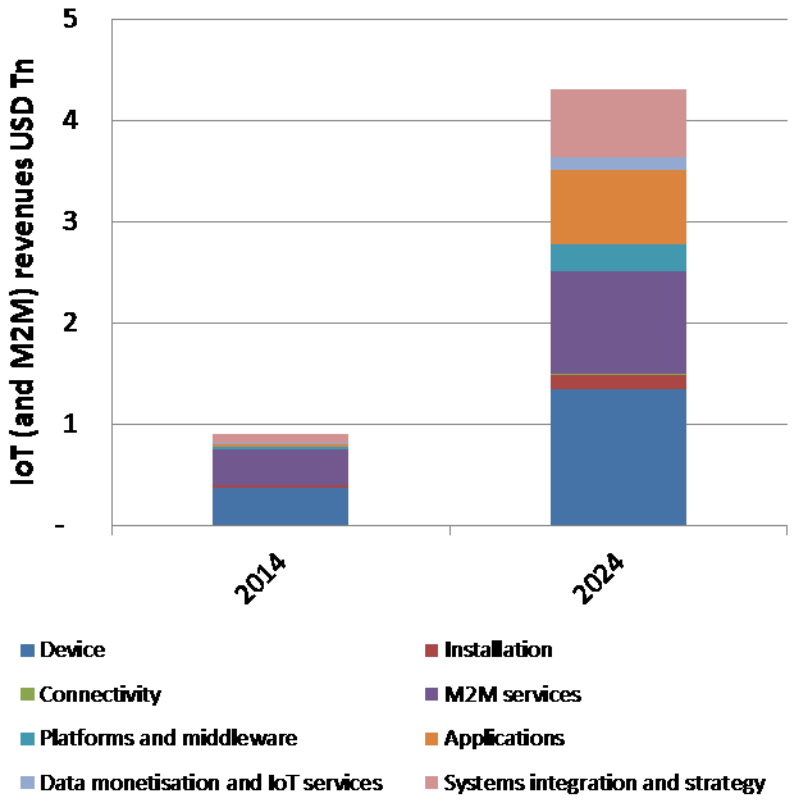


- 5 billion connections in 2014 and there will be 27 billion in 2024, a CAGR of 18%
- 69% of connections in 2024 will be short range, down from 72% at the end of 2014
- Cellular accounts for 2.2 billion connections in 2024, an increase from 256 million at end of 2014
  - By 2024 3G takes 21% and 4G/LTE 54%, driven by higher bandwidth requirements and need for future-proofing
- 14% of connections in 2024 will be LPWA, driven by the simplicity of deployment

Source: Machina Research 2015

The total IoT opportunity will be USD4.3 trillion by 2024

IoT revenues (including M2M), USD trillion, 2014 and 2024



- Clearly IoT services represent a very substantial opportunity
- Opportunities for new IoT business propositions are incremental, on top of these figures
- And that's the message: IoT will be huge, and will disrupt almost all aspects of enterprise

Source: Machina Research 2015

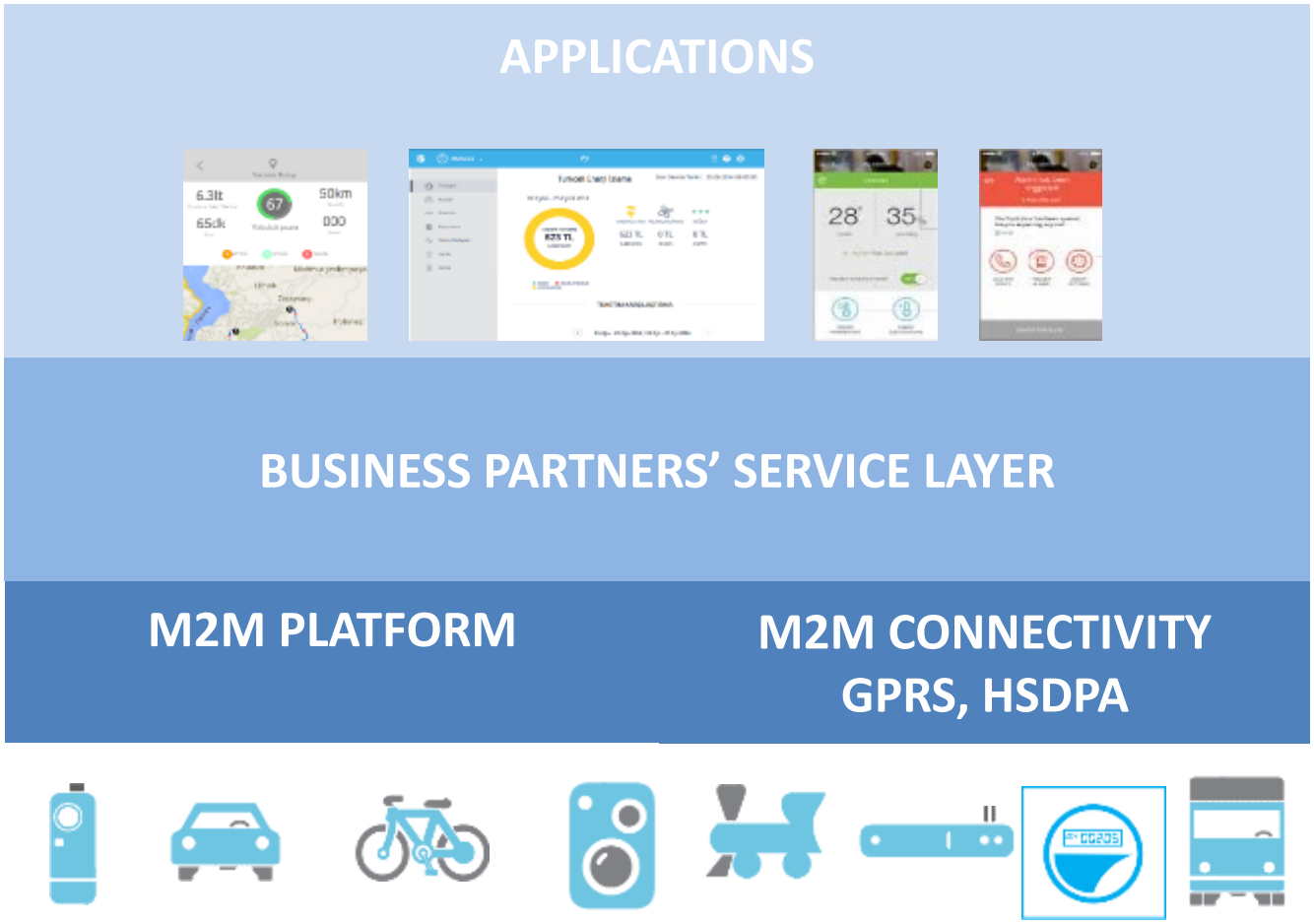
Standard telco model

Vertical Apps

Service Layer

Connectivity Management

Machines



What is M2M and what is IoT platform ?

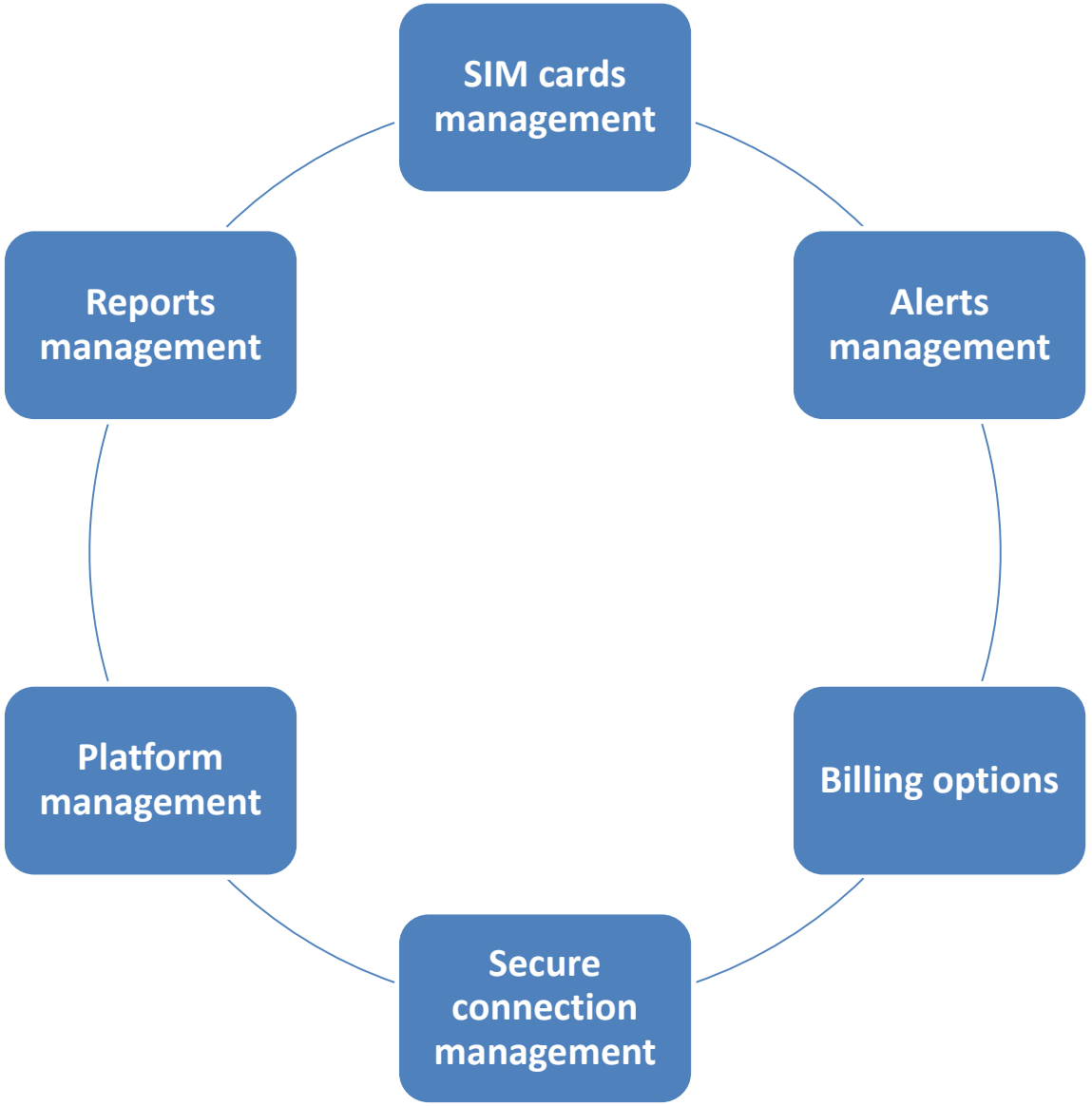
“Machine to machine” service is a group of technologies that allow wireless access to / control of the special devices, that gather information about distant objects.

M2M is considered an integral part of the **“Internet of Things” (IoT)** and brings several benefits to business in general as it has a wide range of applications such as industrial automation, logistics, Smart Grid, Smart Cities, health, defence etc. mostly for monitoring but also for control purposes.

IoT platform should cover all possible M2M needs:

- **Control & Usage** of your special equipment / devices in those places where you simply can not use wired connection. For example if you need to control your building machinery like bulldozers and cranes simply from your iPad.
- **Quick connection** of the new M2M deices or equipment without the cost of organizing dedicated wired connection. For example if you provide Public surveillance cams you can use a secure and dedicated wireless M2M connection.
- **Cost optimization** of your M2M SIM cards data traffic bills. IoT platform is not a single cellular operator’s solution, so it allows to easily manage SIM cards from different operators to keep your costs down.
- **Data analytics** that transforms machine or M2M data into actionable information, ready to be integrated into other systems.

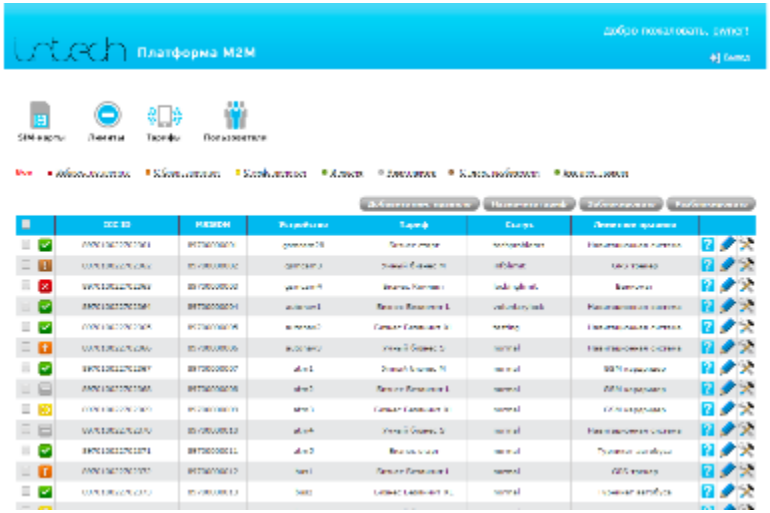
IoT solution components and functions



SIM cards management

- IoT solution allows to conveniently manage your SIM cards from different operators to **keep the cost of data traffic down**.

- IoT solution has a **convenient web interface**, that can be easily and securely accessed from, for an iPad or PC
- **Prevention of fraud** is realized through SIM cards usage rules settings and alerts management
- **Online management** of SIM cards allows to quickly determine if the SIM card is working or not (for example if the SIM card is out of network reach), see if the data flow is going, determine the set of IP addresses and other functions.



Alerts management

- **Alerts management** function is used to receive alerts to the set email or mobile phone number with a set frequency (for example 1, 6 or 24 hours) about set events
- **Business rules** can be set to be processed after certain events. Rules processing means the alerts are issued or certain actions are taken. For example:
  - To many connections rule. Works if SIM card is trying to connect too often during the last 24 hours
  - Last SMS rule. Works if SIM card is sending more SMSs than was preliminary set
- **Traffic limit.** For the set number of SIMs a certain traffic limit can be set, after reaching of which:
  - Alert is issued over email or SMS
  - SIM card status is changing (to “blocked” for example)
- **Session management.** This functionality allows to quickly determine SIM cards that are working incorrectly or have an unstable connection so that these SIM cards will be blocked before additional data traffic is consumed.

IoT billing options

• IoT solution can be easily **integrated** with operator's **billing system** for:

  – Automatic change of SIM cards tariff

  – Change SIM cards set of services

  – Block SIM cards on operator side

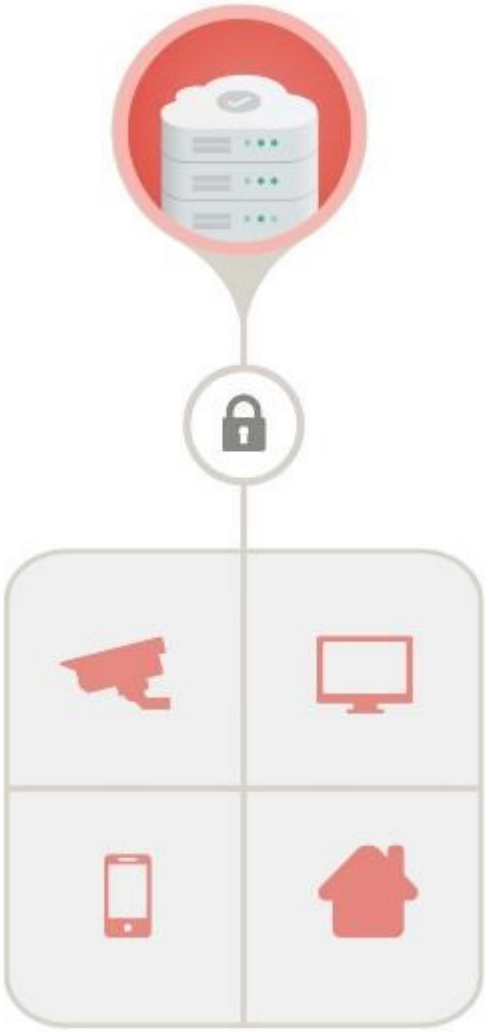
  – Quickly gain SIM card traffic and data monthly record

• IoT solution also allows to create an additional tariff plan for end users, which is useful if you're a solution provider and working with different end users

Secure connection management

IoT solution provides **a secure connection** from the M2M platform and all the way to the device (SIM card) if needed. For example:

- **Static IP.** It provides a possibility for secure access, VPN – connection, from a particular device (SIM card) to your corporate network, based on the Static IP filtering
- **Dedicated APN** is another secure mechanism supported by IoT solution for an additional security of access to corporate network (in this case company uses a unique access point)



Reports management

IoT solution might provides **a following statistics and report tools:**

- Usage report on the selected group of SIM cards
- SIM cards payments
- Particular SIM card statistics and bill*
- SIM cards activation*
- Data traffic (type and amount) for the set period (day / month/ week)
- Custom reports are also can be developed according to your need!

Reports management

Universal SIM Chips

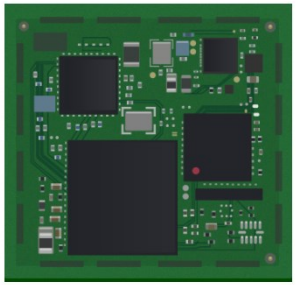
Electronic device with integrated connectivity (Besides Wi-Fi and Bluetooth, SIM chip is installed with uploaded profile of a mobile operator)

Plug & Use:
- To switch on you just have to connect the battery
- Flexible settings over IoT BackEnd
- No need for extra customization of Hardware and Firmware.
- Small amount of electronic components (both passive & active)

Interfaces to connect:
- SPI (for ex. to connect with CAN bus of cars/trucks and other machines)
- SDIO (for ex.to connect extra flash memory)
- I2C (for ex. to connect external microphones)
- USB

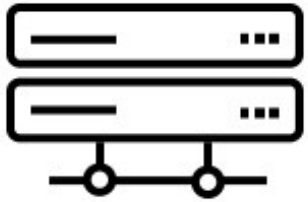
Tech specs:
CPU ARM Cortex X
Accelerometer
Gyroscope
Bluetooth Low Energy
3G
LTE
GPS+Glonass
WiFi
SIM chip
Android based
MQTT support
OTA updates

Size: ~ 30/30/3 mm



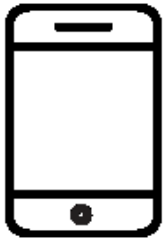
Structure of IoT platforms

Device



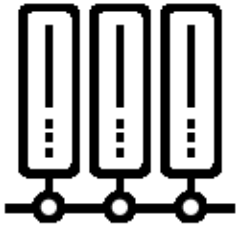
Back End

- Device data collection order / logic
- Data transfer to user App over standard API
- Data transfer to corporate servers over encrypted channel



Apps

- Collection of READY TO USE standard Apps
- Web site with READY TO USE standard Apps



Corporate servers for M2M data storage

Example of IoT
Pets control platform

No buttons
To turn Mishiko on, just shake it!

Wear-and-Go
Comfortable collar and fits-them-all mount i ncluded

Waterproof
Waterproof for up to 1m,
with IP67 certification

Durable
High-grade aluminum body for ultimate prot ection

No wires
Wireless charging station

Never lose
GPS module tracks pet's location any time

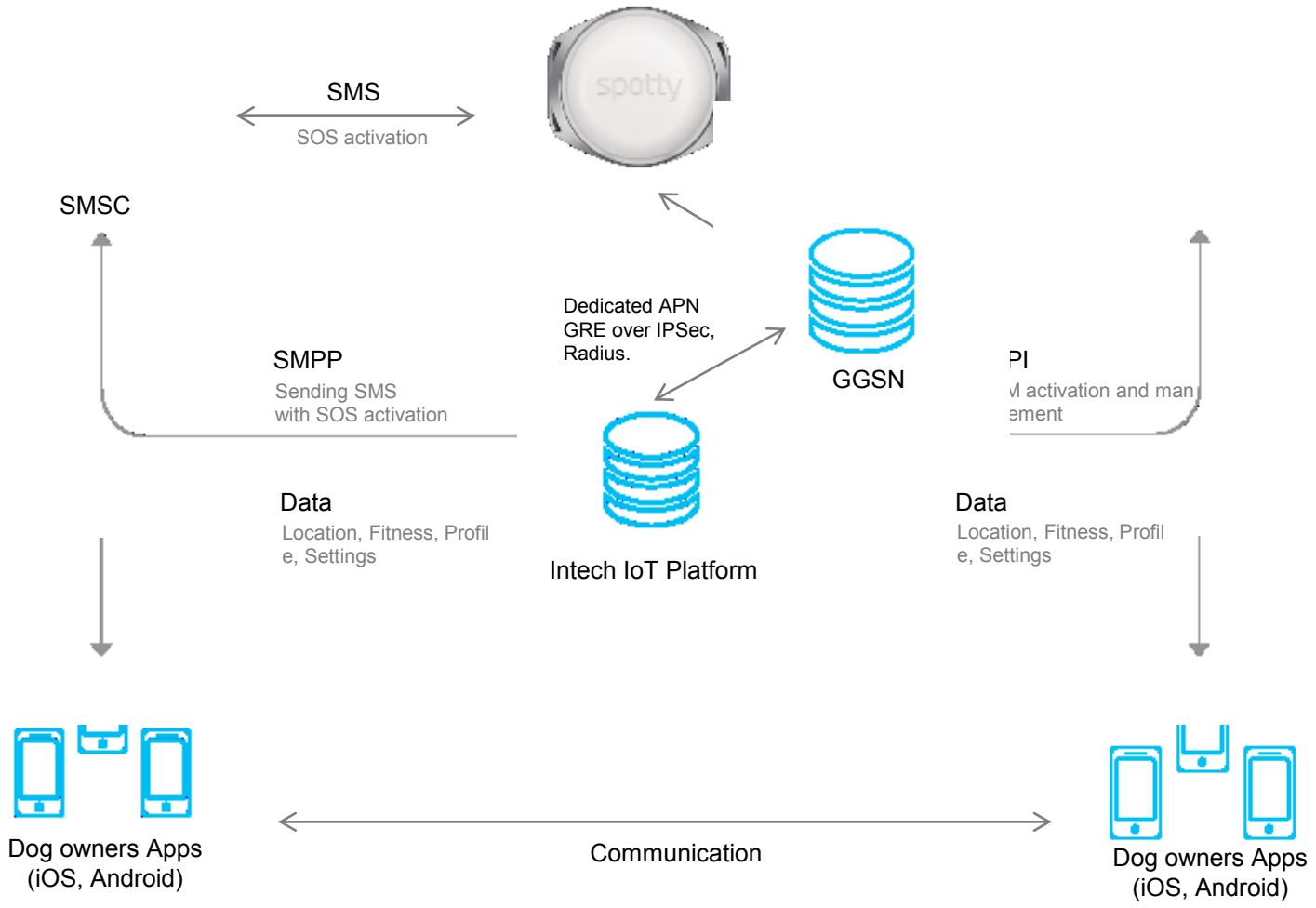
Track activity
Accelerometer tracks dog's physical activity all day long

Synchronization
Device sends data via wireless network (2G/3G)

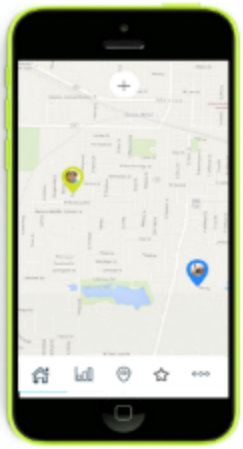
Always updated
Device updates firmware automatically

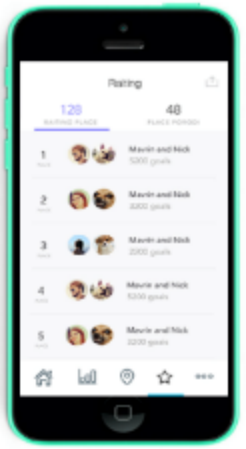
Long battery life
Up to 5 days on a single charge

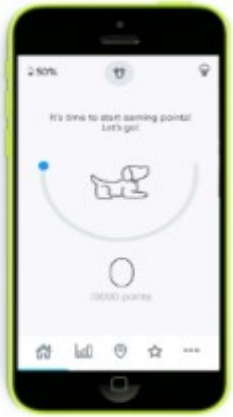
Example of IoT
Pets control platform

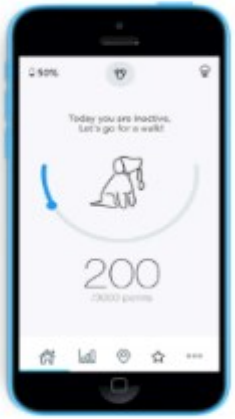


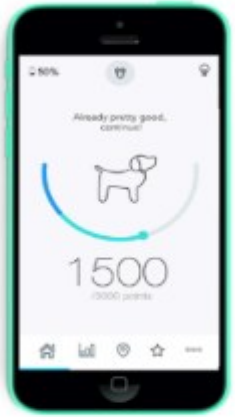
Example of IoT
Pets control platform

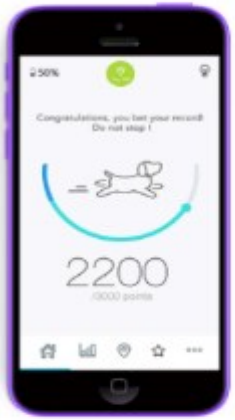












Example of IoT
Smart watches

Fast-paced city life gives you less chance to pay enough attention to your family, but we still have to take care of our relatives.

Where is your child now? What are the risk zones for your child? Have you ever lost your child in crowded places like airport or shopping mall?

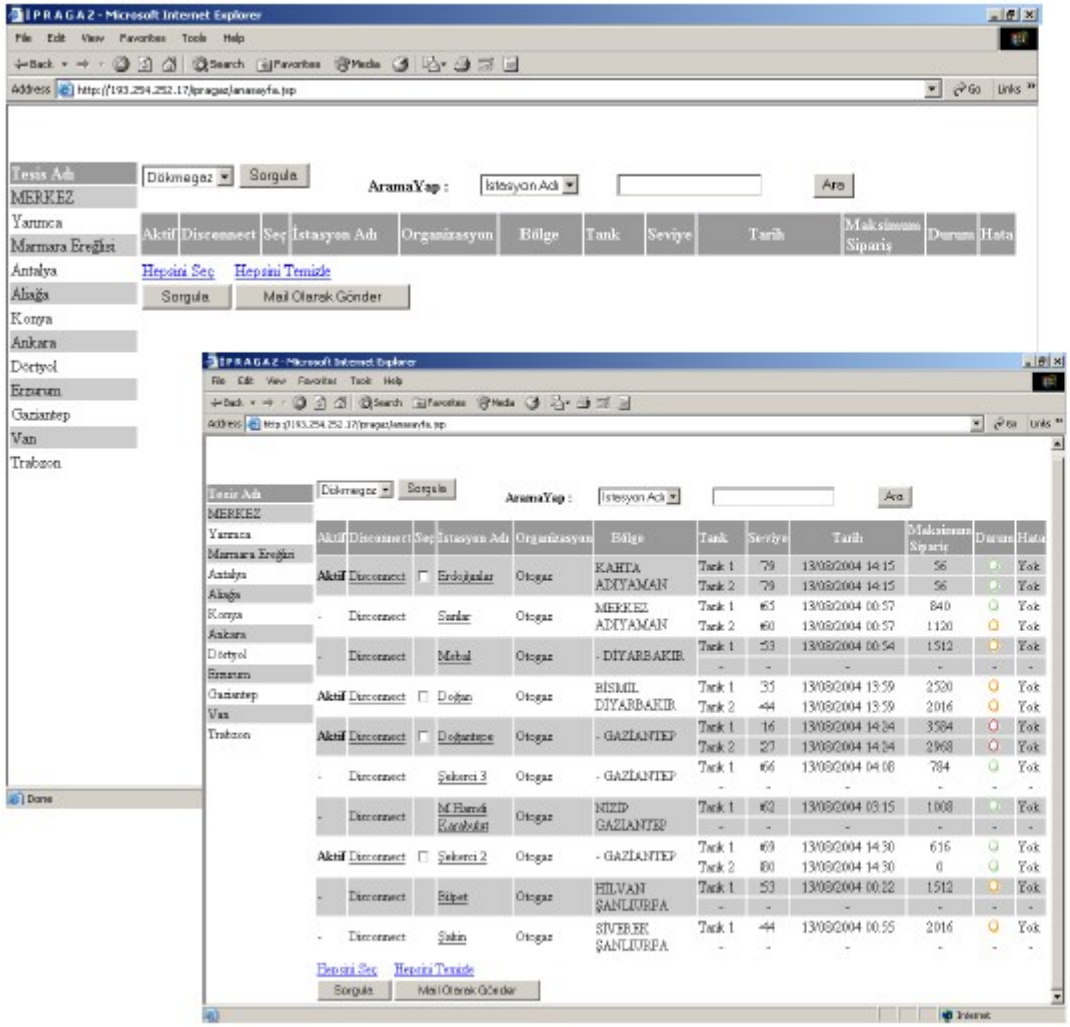
Emergency situation could happen to your relatives any moment, and it's critical to react to it as fast as you can.

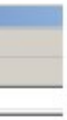
Example of IoT
Smart watches

MAIN FEATURES

- Quick and easy call to personal contacts
- Waterproof and shock resistant, IP 67
- Voice recognition software
- OTA software and settings update
- Signals for people with poor eyesight
- Background listening
- Heart rate monitor
- Pedometer

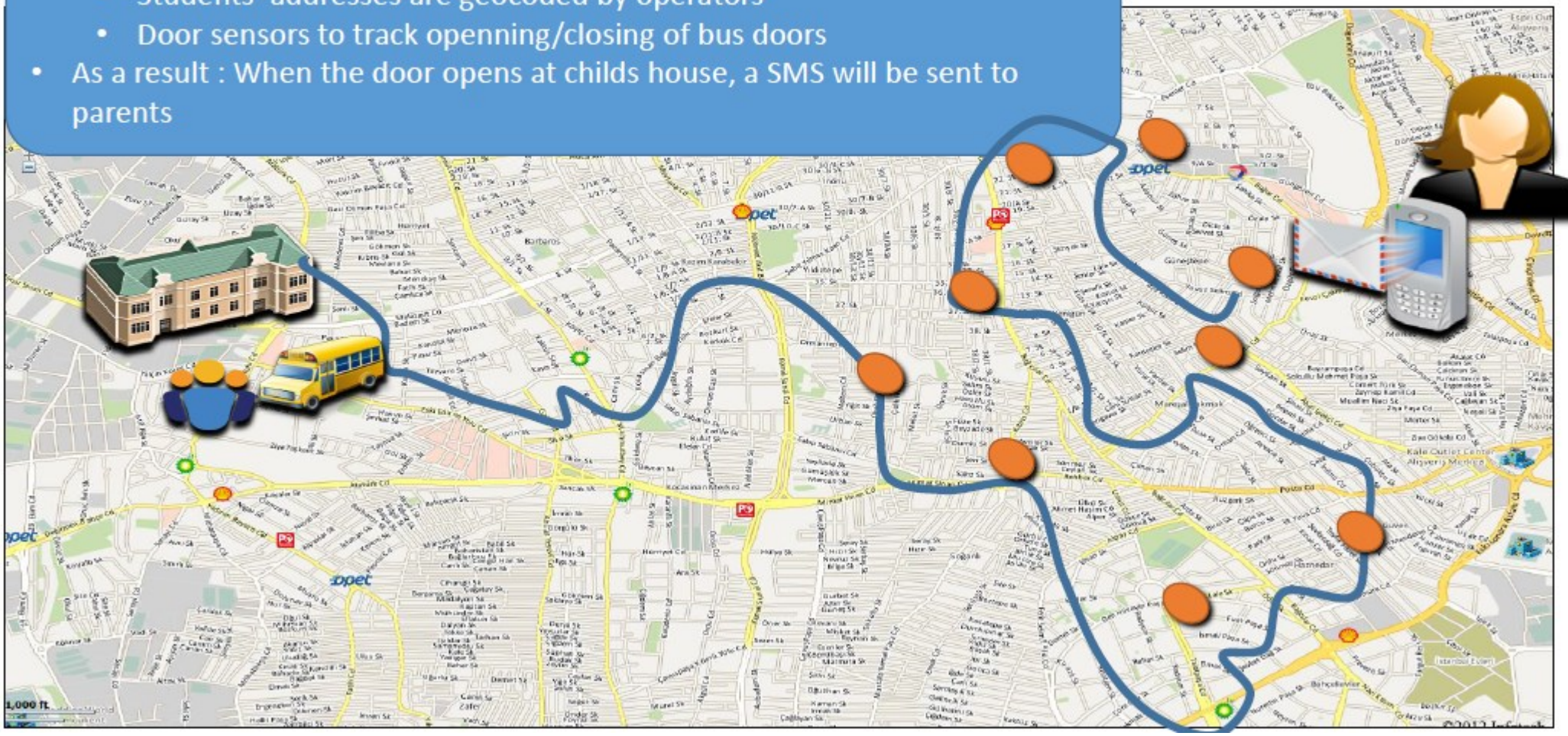
Example of IoT
Gas delivery control





Example of IoT
Transport control

- Operation
  - Students' addresses are geocoded by operators
  - Door sensors to track openning/closing of bus doors
- As a result : When the door opens at childs house, a SMS will be sent to parents



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