Heterogenous Tool Kit for Real-Time Edutaiment

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Main idea

ENTERTAINMENT
as well as
EDUCATION

Car Orienteering
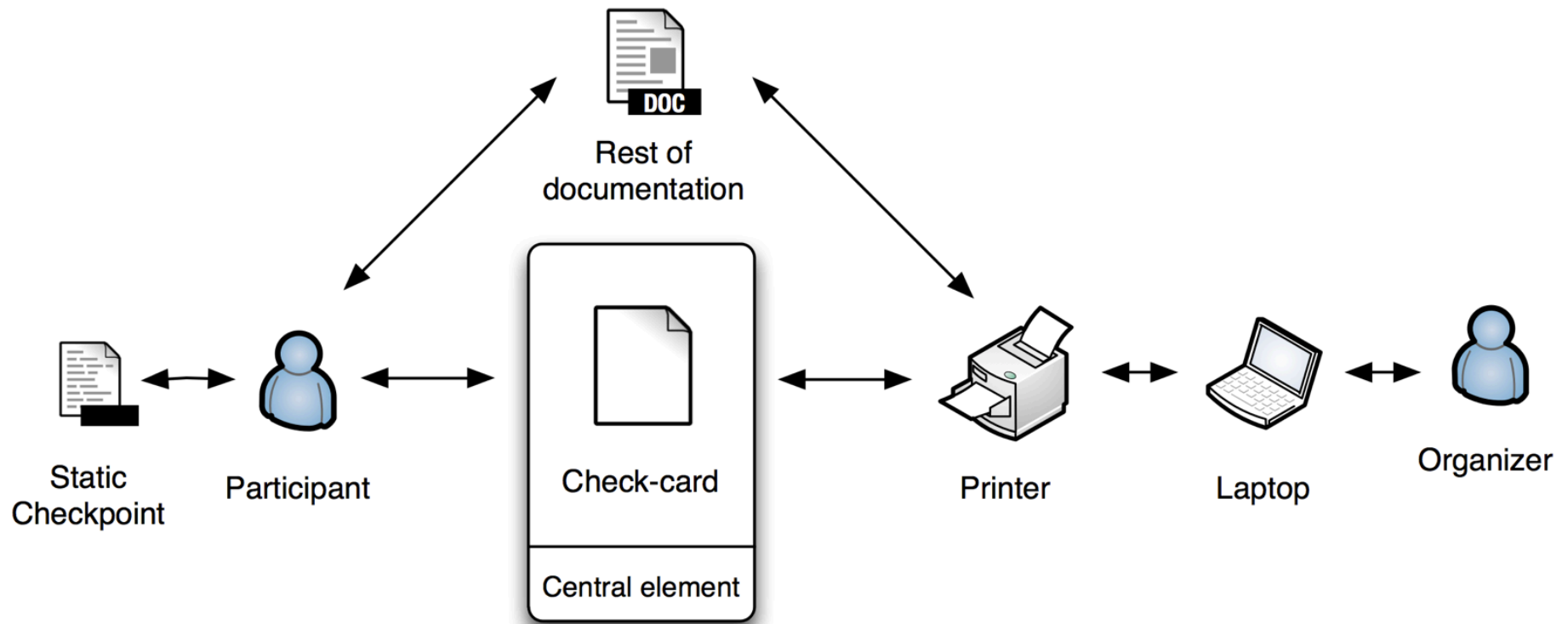
Events organized by
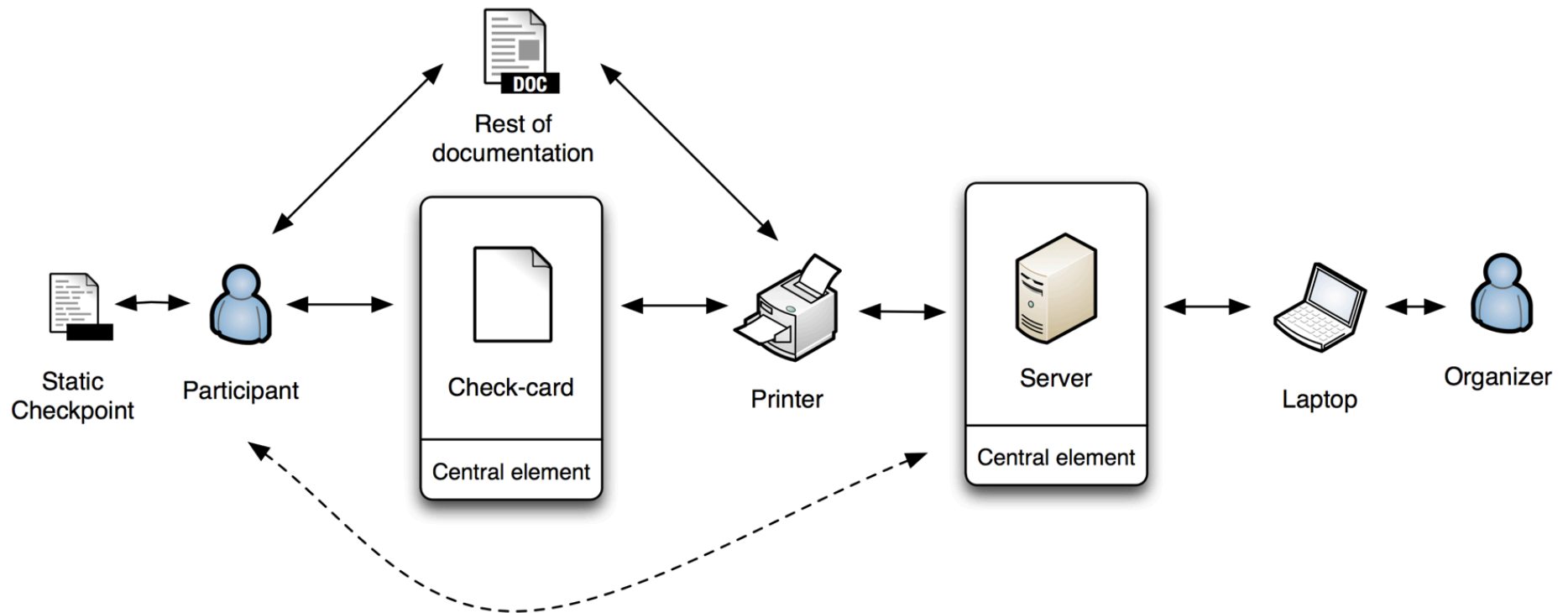

and a lot of other organizations and people...

Event Organization Evolution of Autoliste

Static Checkpoint — Participant — Check-card / Central element — Printer — Laptop — Organizer

Rest of documentation

**1st step
2001 - 2005**

Rest of documentation

Static Checkpoint

Participant

Check-card

Central element

Printer

Server

Central element

Laptop

Organizer

**2nd step
2006 - Spring 2007**

Static Checkpoint · Participant · Mobile Phone · SMS Mobile Network · Central element · Mobile Phone · Laptop · Organizer

**3rd step
Autumn 2007**

Introduced Summer 2009

Static QR Code Checkpoint ↔ Participant ↔ Mobile Device

Static Checkpoint ↔ Participant ↔ Mobile Phone

Internet

Event Control System

Central element

Internet

Laptop ↔ Organizer

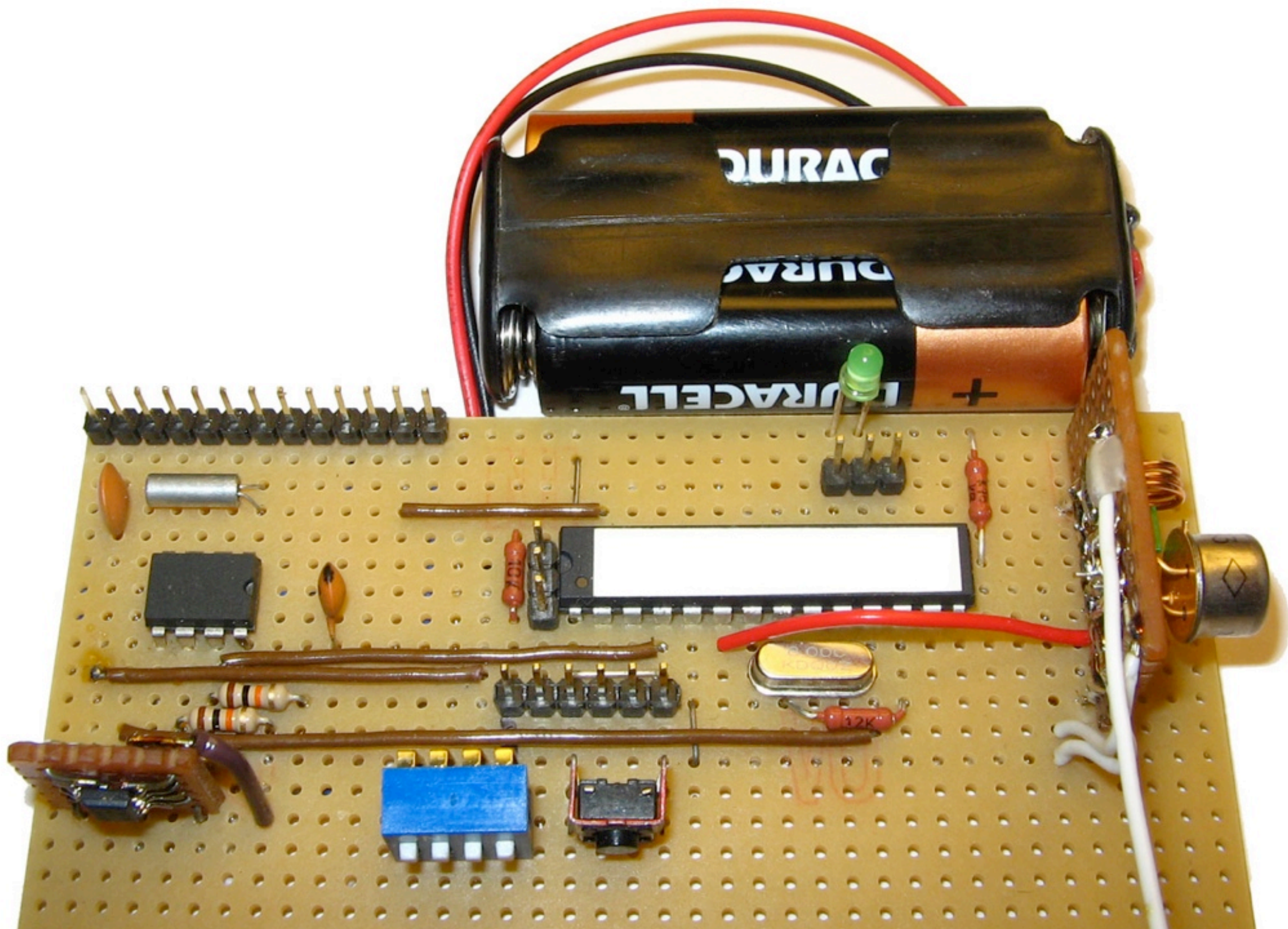Smart Phone ↔ Organizer
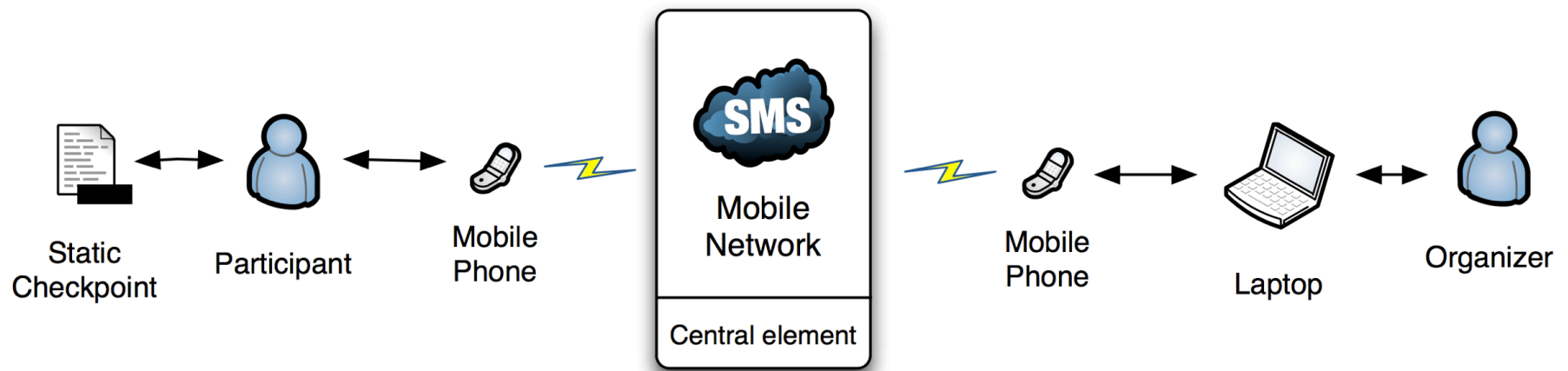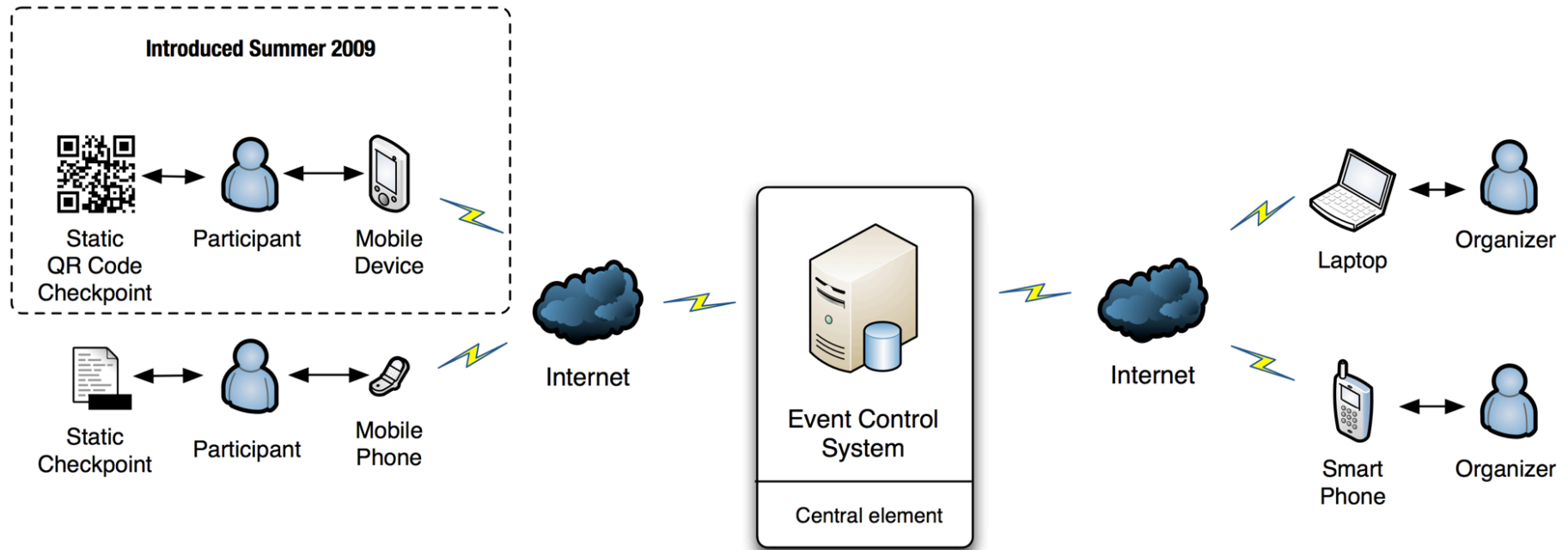
4th step
2008 - Spring 2011
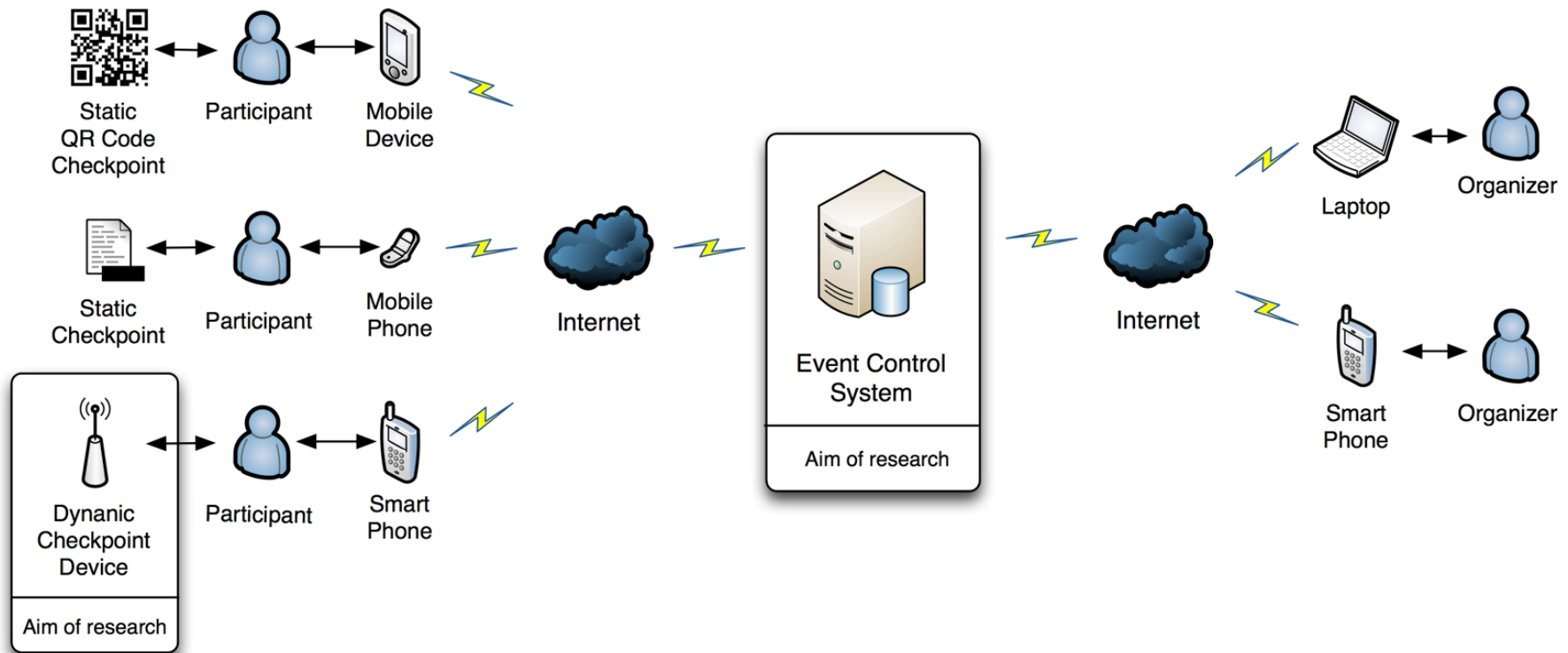
**5th step
Autumn 2011 - now**

Hardware

Dynamic Checkpoint Device

Embedded device consists of following components:

- Atmel Atmega 328p MCU @ 8MHz
- NXP PCF8593P RTC chip to control timing of events
- Atmel AT24C64C 64KB EEPROM chip for data storage
- Transistor based FM SRD transmitter driven by micro controller
- Powers from 2 AA type batteries
- MansOS as firmware (initially Arduino)

Software

Event Control System

- **Lightweight web based application**

- **Works in standard PC Internet browser or any HTML-enabled smartphone**

- **Customizable and configurable for event requirements**

Allows full event management including:

- **Participant registration**
- **Task definition**
- **Control of checkpoint placement and activation**
- **Task assignment to participants**
- **Task progress tracking**
- **GPS track analysis**
- **Traceable communication between organizers and participants**

Task types can include:

- **Orienteering checkpoint authorization by entering code**
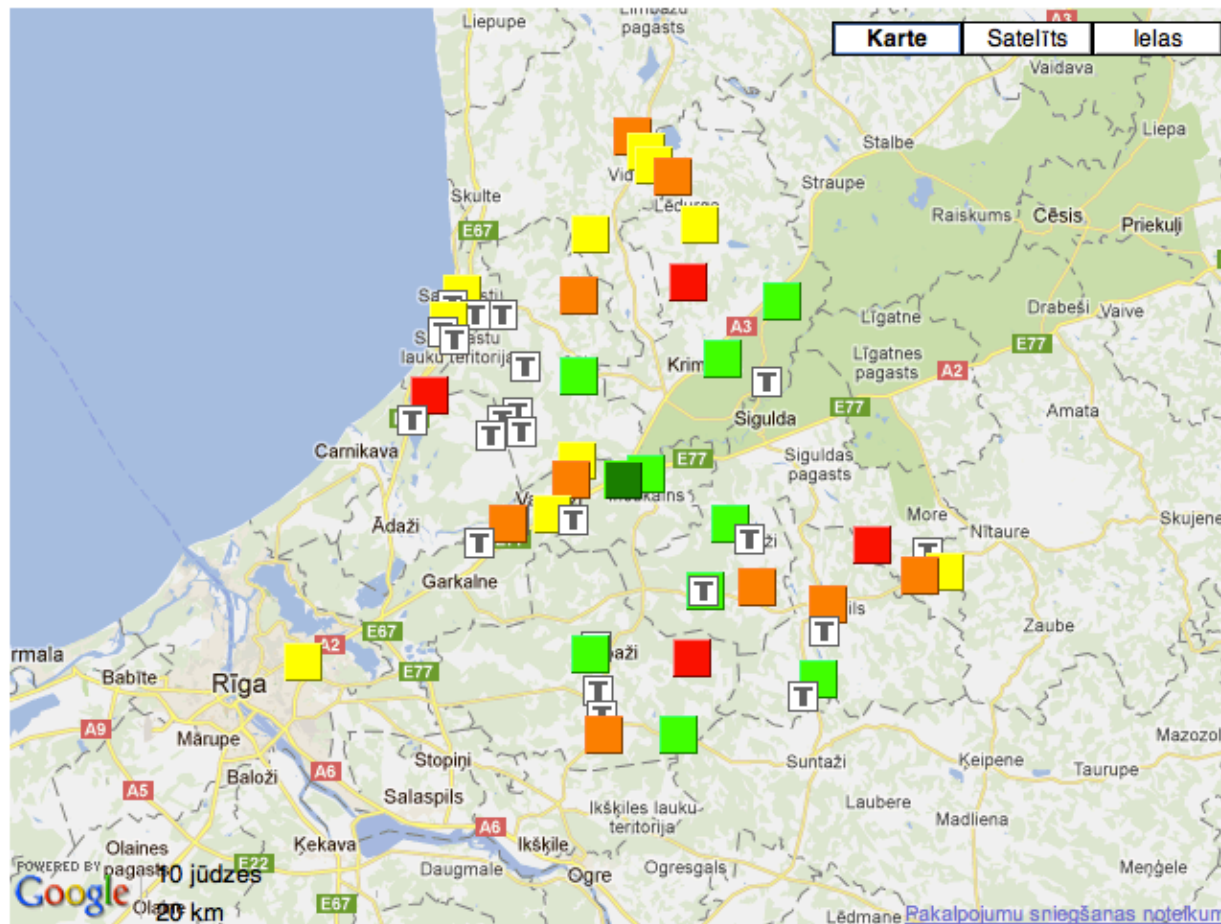- **Timed test**
- **Estimation of distance between two objects**

Task assignment can vary between making it available to participant:

- **At particular moment of time**
- **Based on participant's performance**
- **Based on overall event state**

GPS track analysis is based on:

- **Maximum speed check with error correction**
- **Checkpoint authorization**

http://acevo.tosteris.com/Expo/Replay/   Q▾ Google

akero systems

| Karte | Satelīts | Ielas |

Ekipāžas parole:

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☑ Enkura Pastnieks *   4957
☑ NPK *   4796
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| Sākums | Atpakaļ | Atskaņot | Uz priekšu | Beigas |

22.05.2010 13:37:40

Pasākuma "eXpotīcija" intelektuālais atbalsts - SIA "Akero Systems"

Future Prospects

- **Evolution of embedded device to be used instead of mobile phone**

- **Real-time participant location**

- **Data analysis of participant's "trails" for behavior, shortest path search etc.**

Thank you!
Questions?

Contact me @ reinholds @ zviedris.lv