Pervasive and Mobile Games

by Kreso Spisic & Dennis Pannhausen

Advisor: Tico Ballagas

media computing group

RWTH AACHEN
RHEINISCH-WESTFÄLISCHE TECHNISCHE HOCHSCHULE AACHEN

Overview

Overview

* Introduction

Overview

* Introduction
* 6 Example Games

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* Introduction
* 6 Example Games
* Classification and Overview

Overview

* Introduction
* 6 Example Games
* Classification and Overview
* Fun Factor

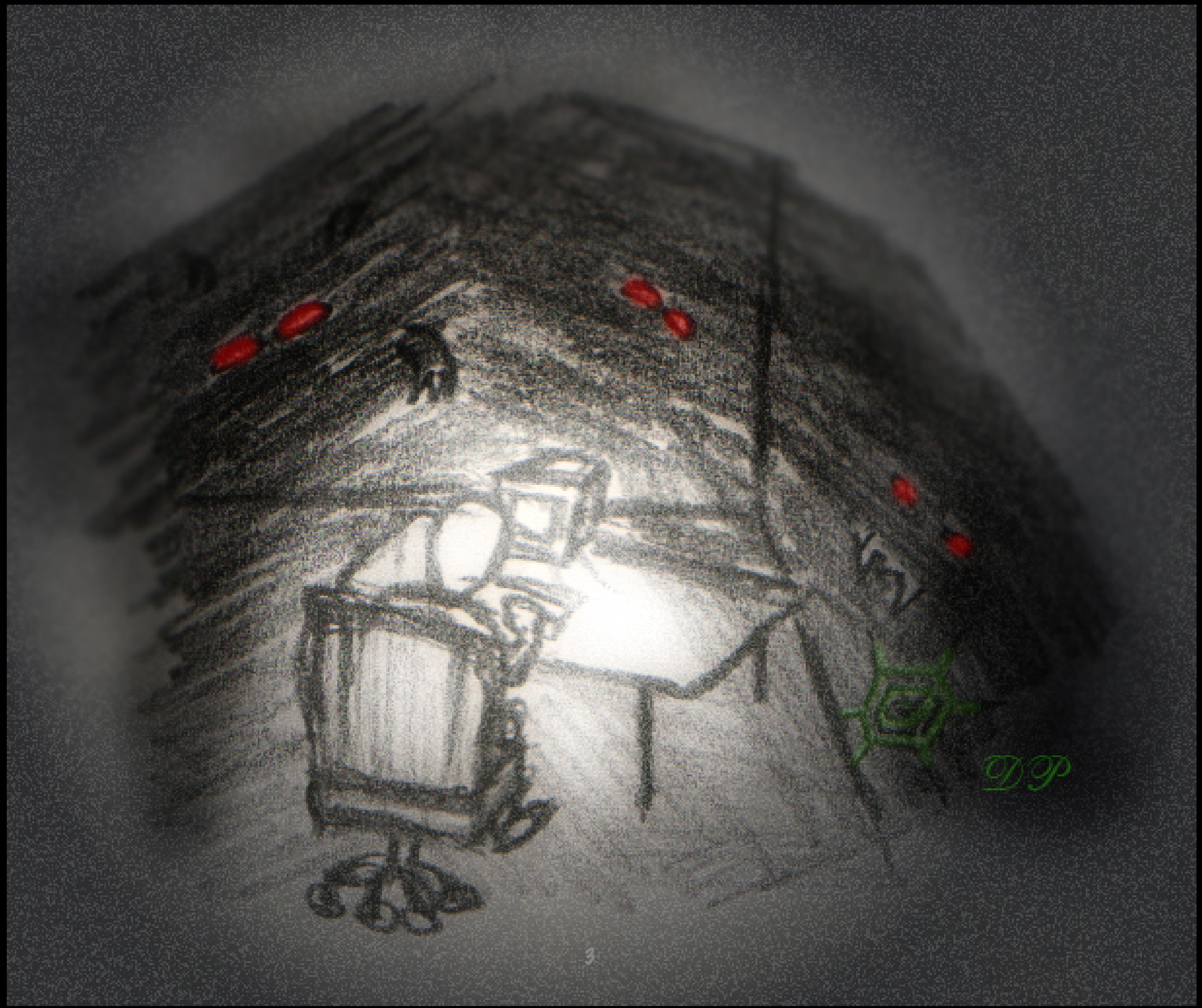
Overview

* Introduction
* 6 Example Games
* Classification and Overview
* Fun Factor
* Conclusion

Introduction

Introduction

* What are "Pervasive and Mobile Games"?


DP

Introduction

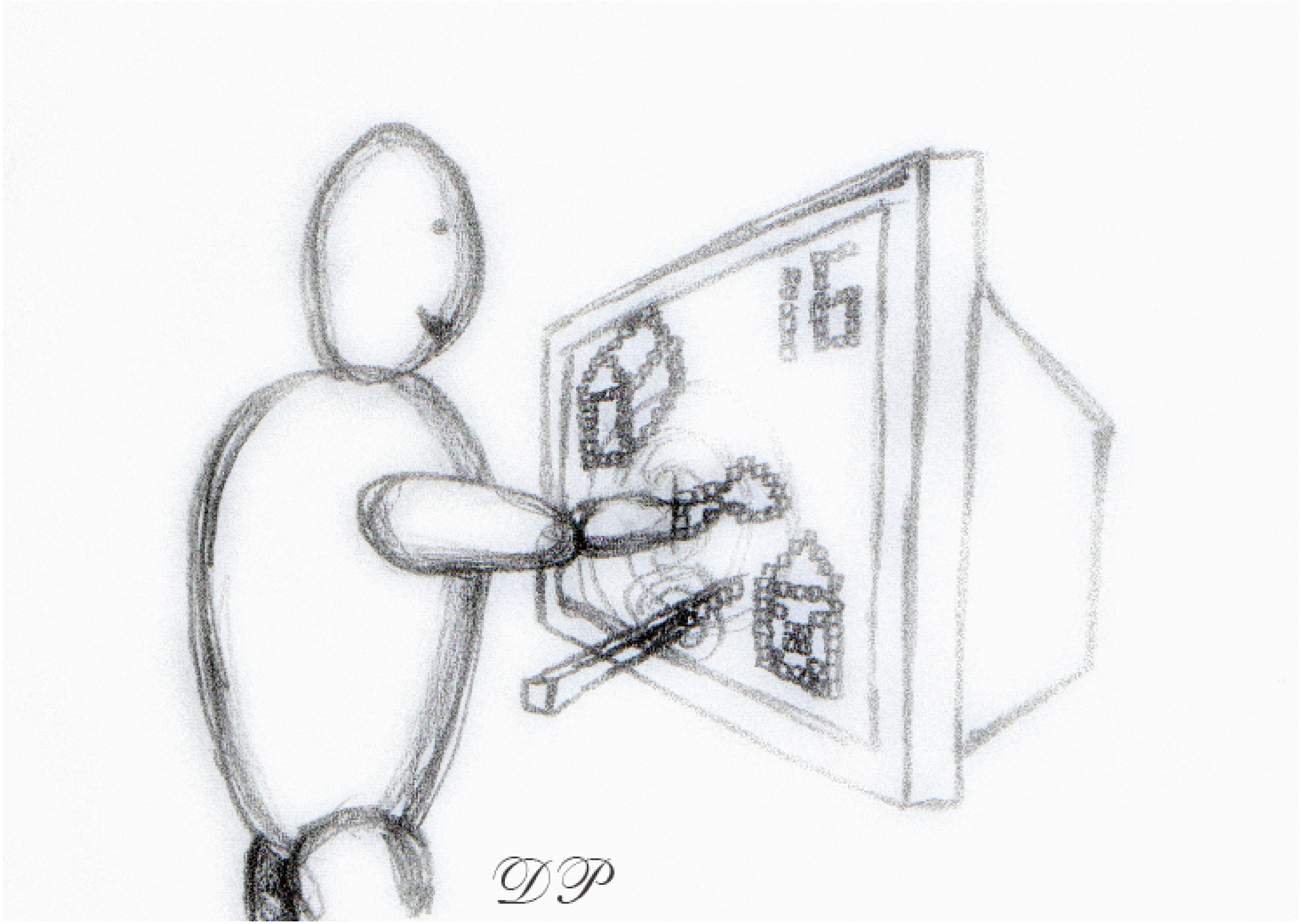
* What are "Pervasive and Mobile Games"?

3 3
DP

Introduction

* What are "Pervasive and Mobile Games"?

DP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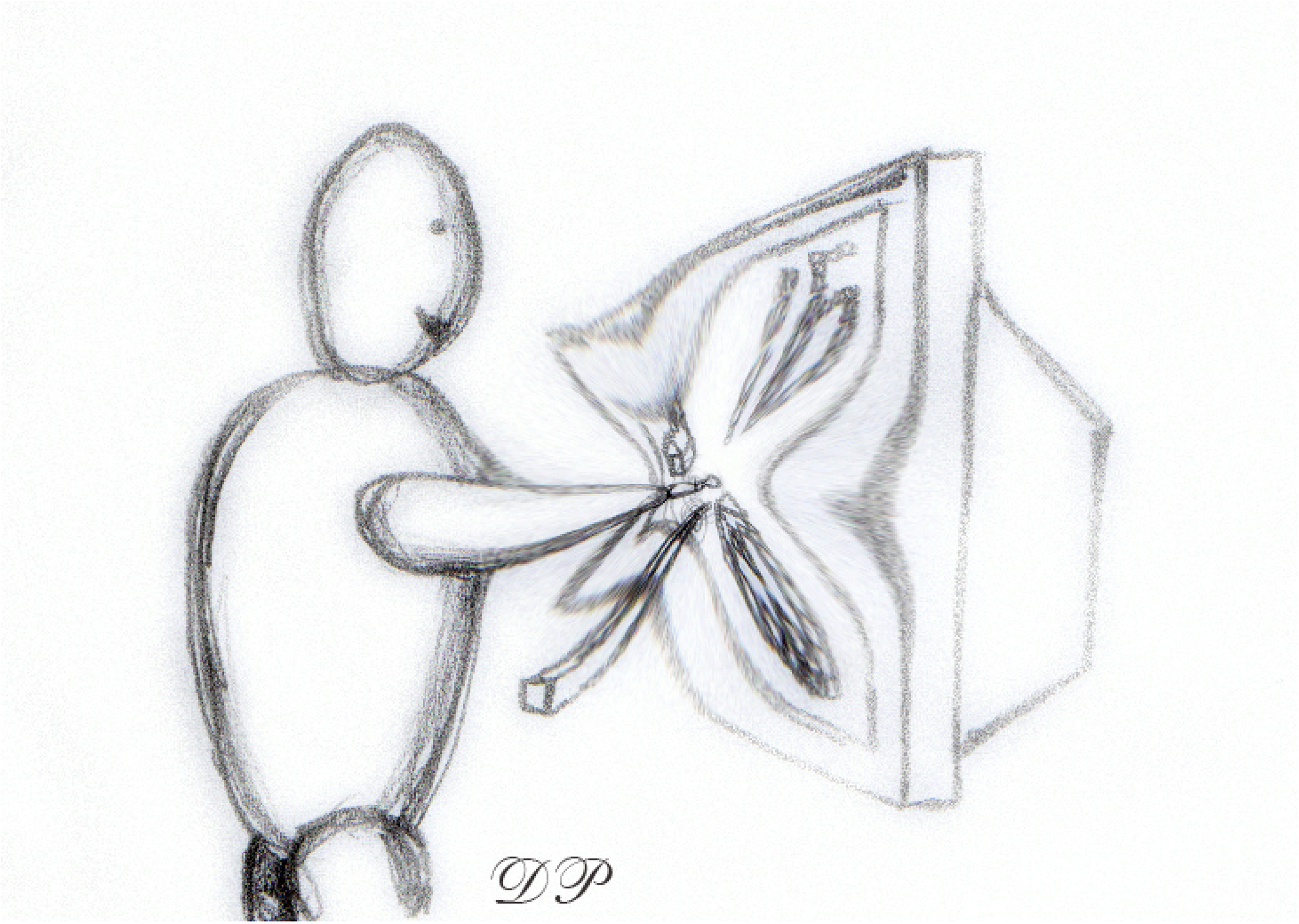

Introduction

* What are "Pervasive and Mobile Games"?

Introduction

* What are "Pervasive and Mobile Games"?
* Entertainment, but also "Serious games" (CSCW)

6 example games

* Can You See Me Now?
* Uncle Roy All Around You
* Treasure

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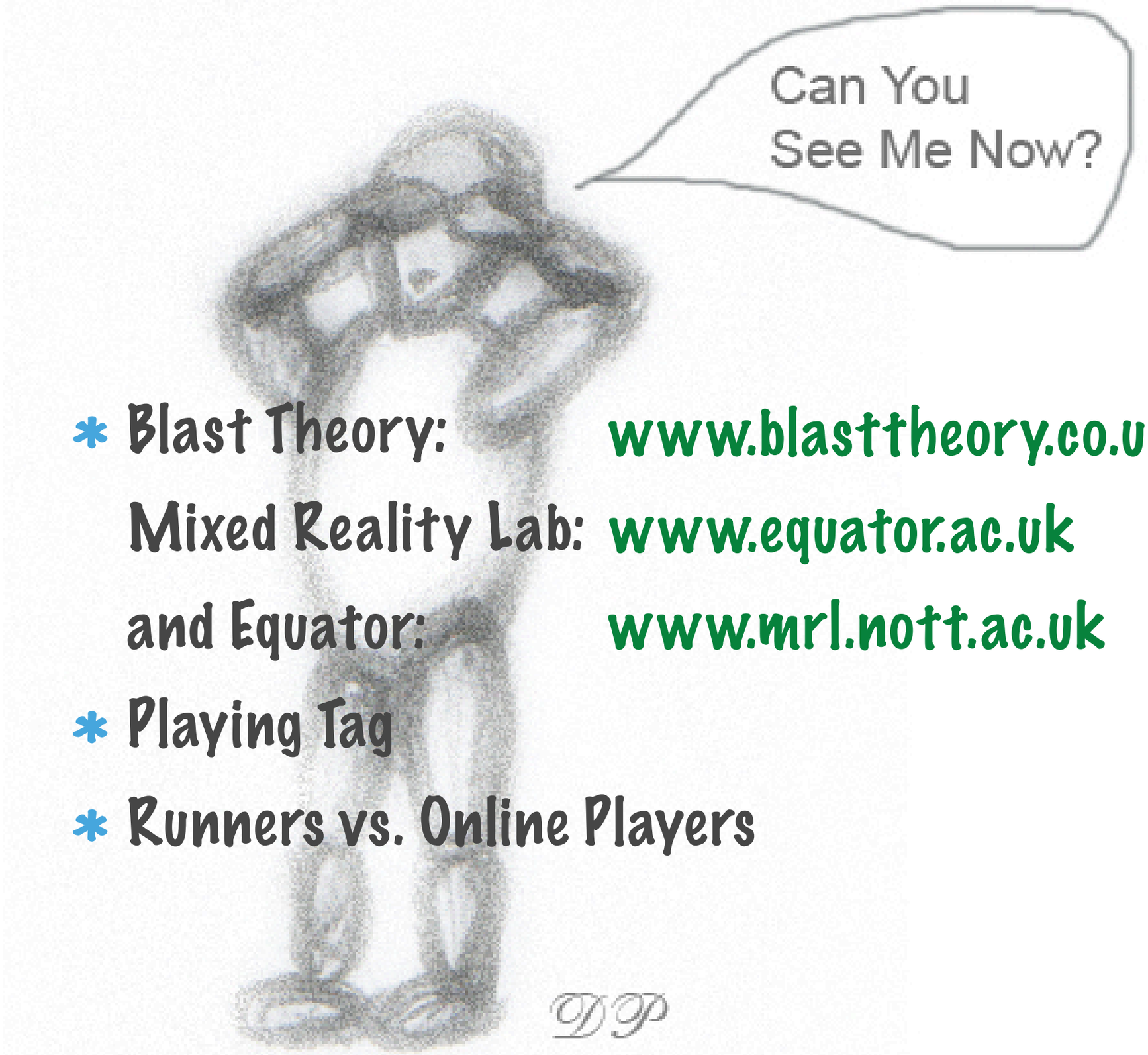
* George Square System
* mGroup
* Online Photo Management



* Blast Theory: www.blasttheory.co.uk

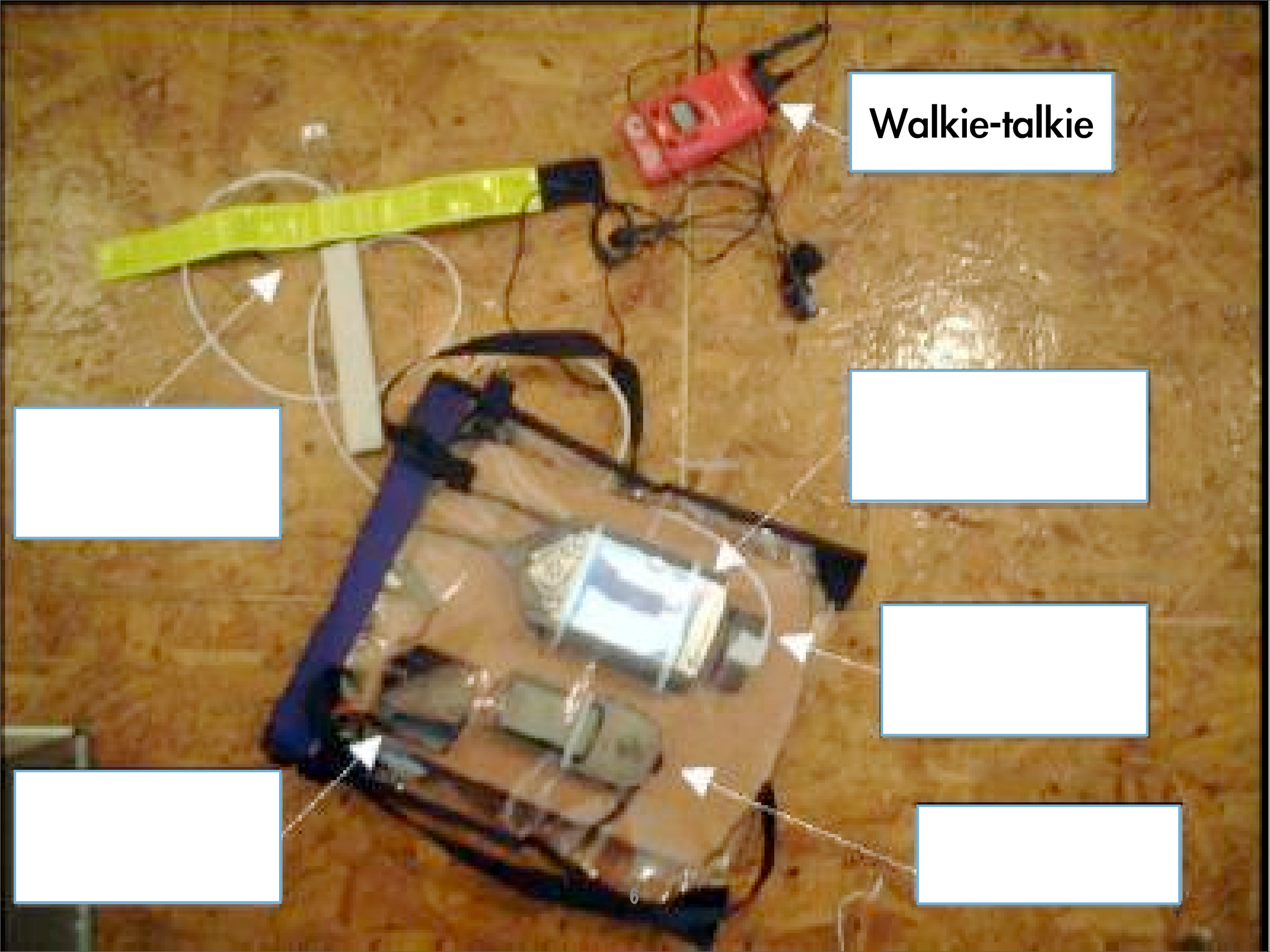
  Mixed Reality Lab: www.equator.ac.uk

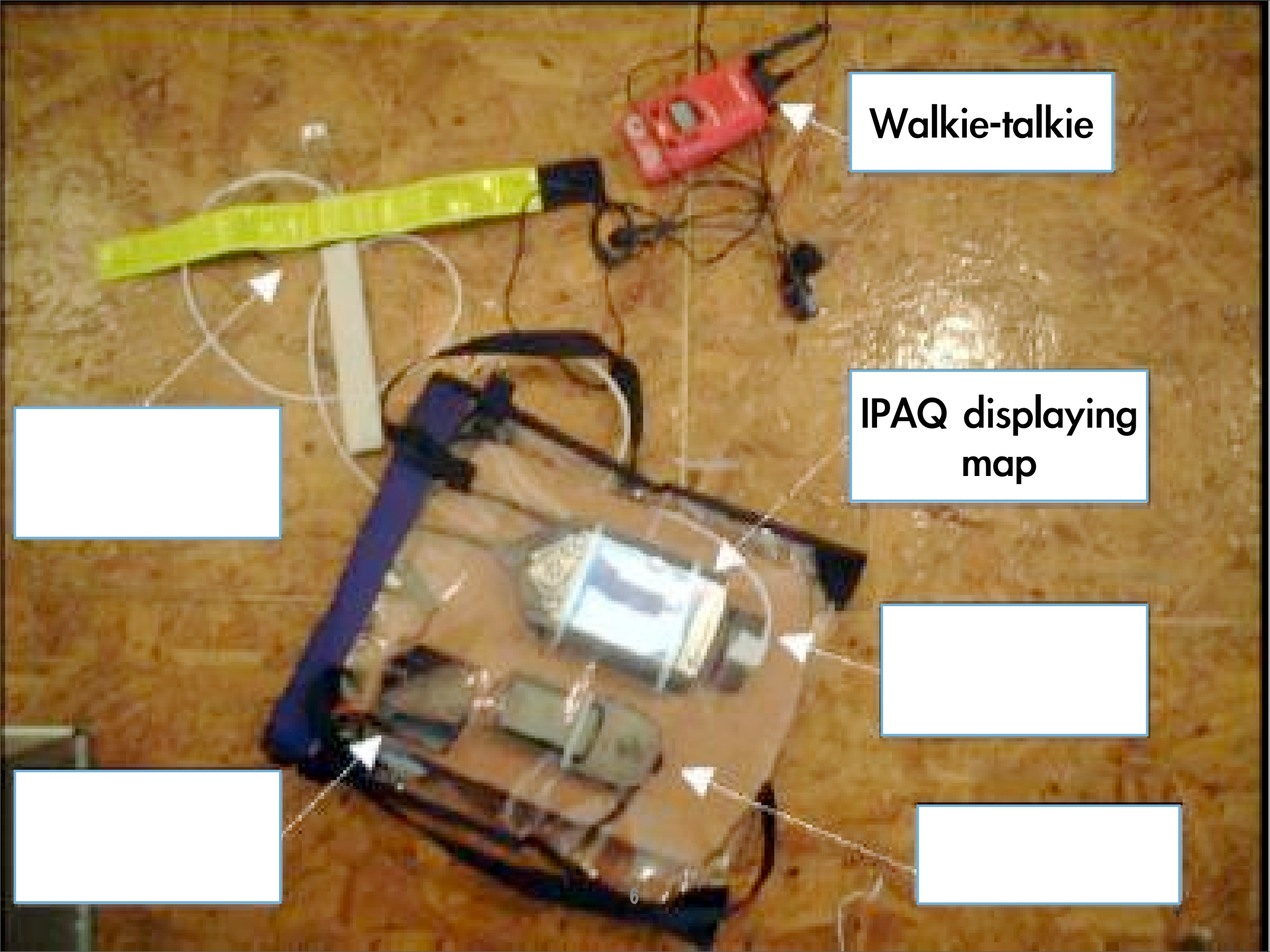
  and Equator: www.mrl.nott.ac.uk

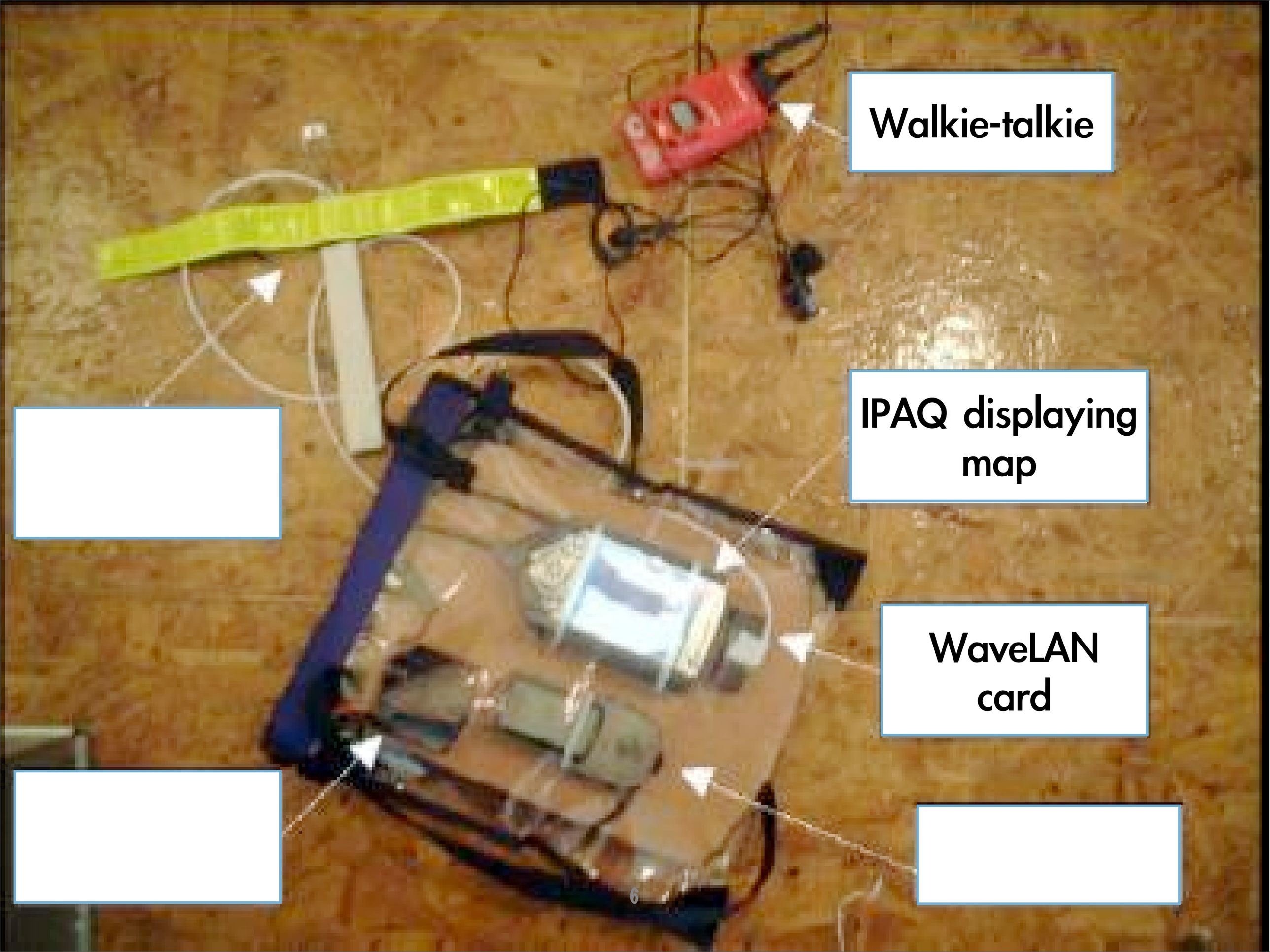
* Playing Tag

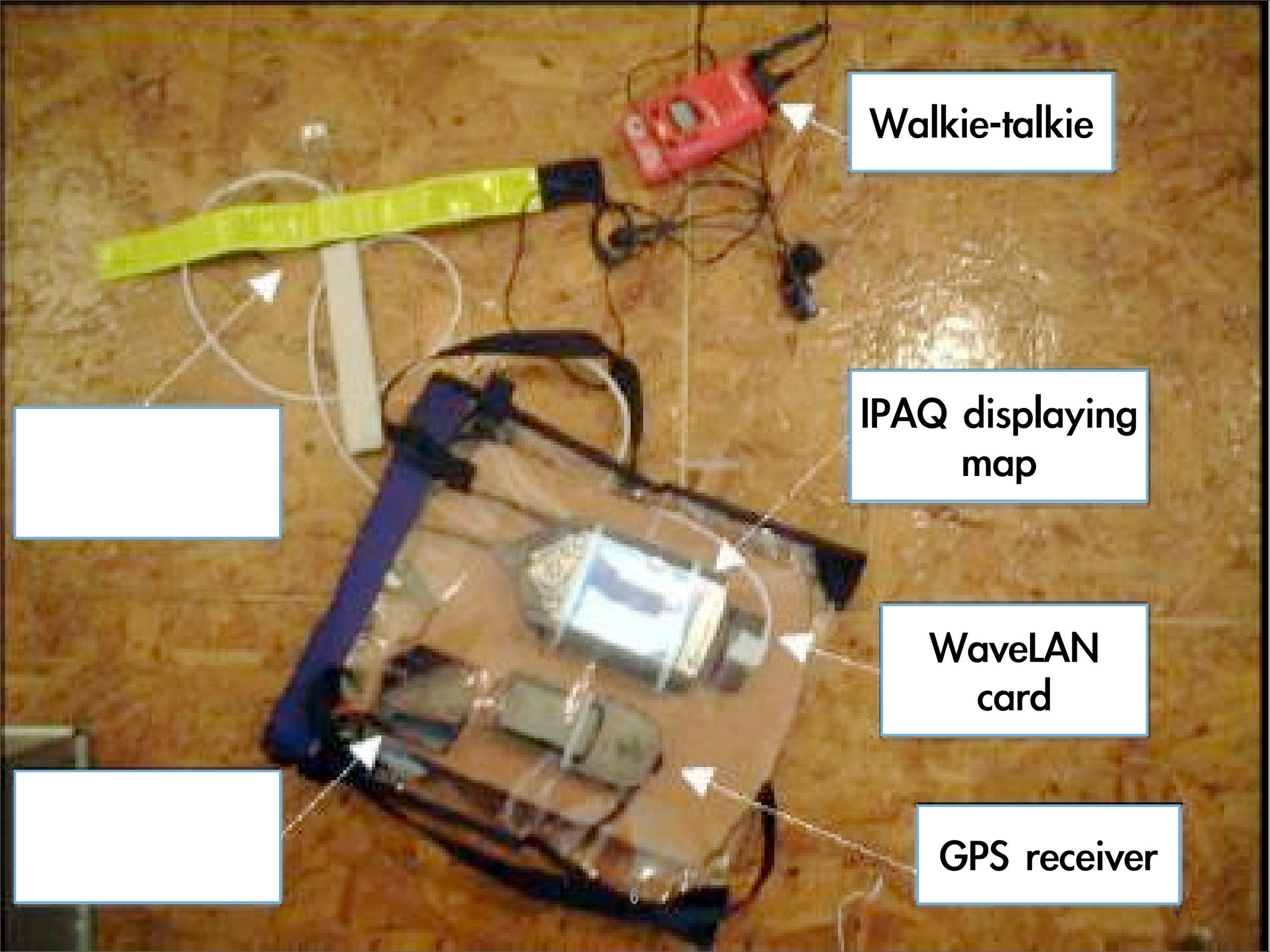
* Runners vs. Online Players

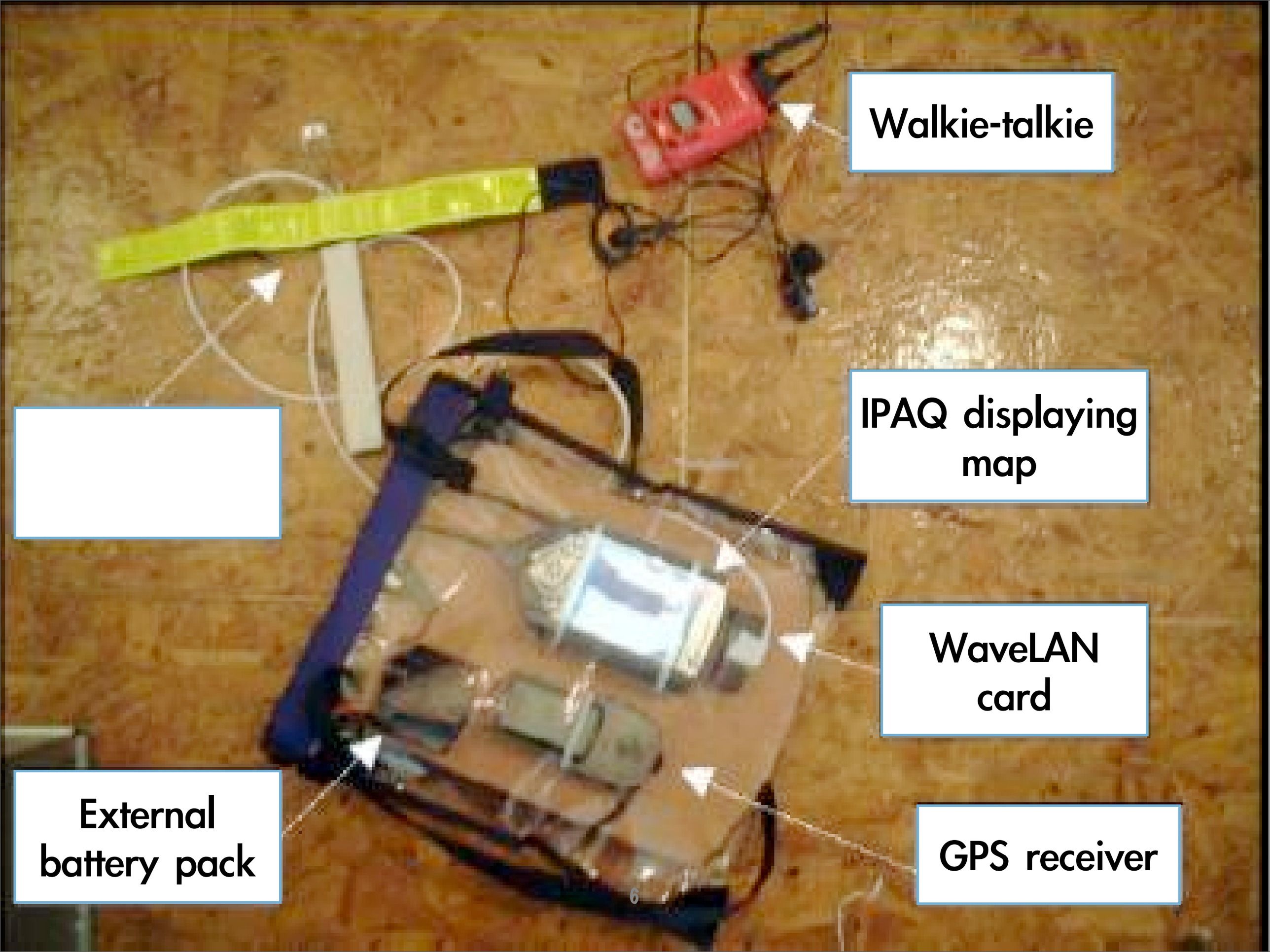
DP

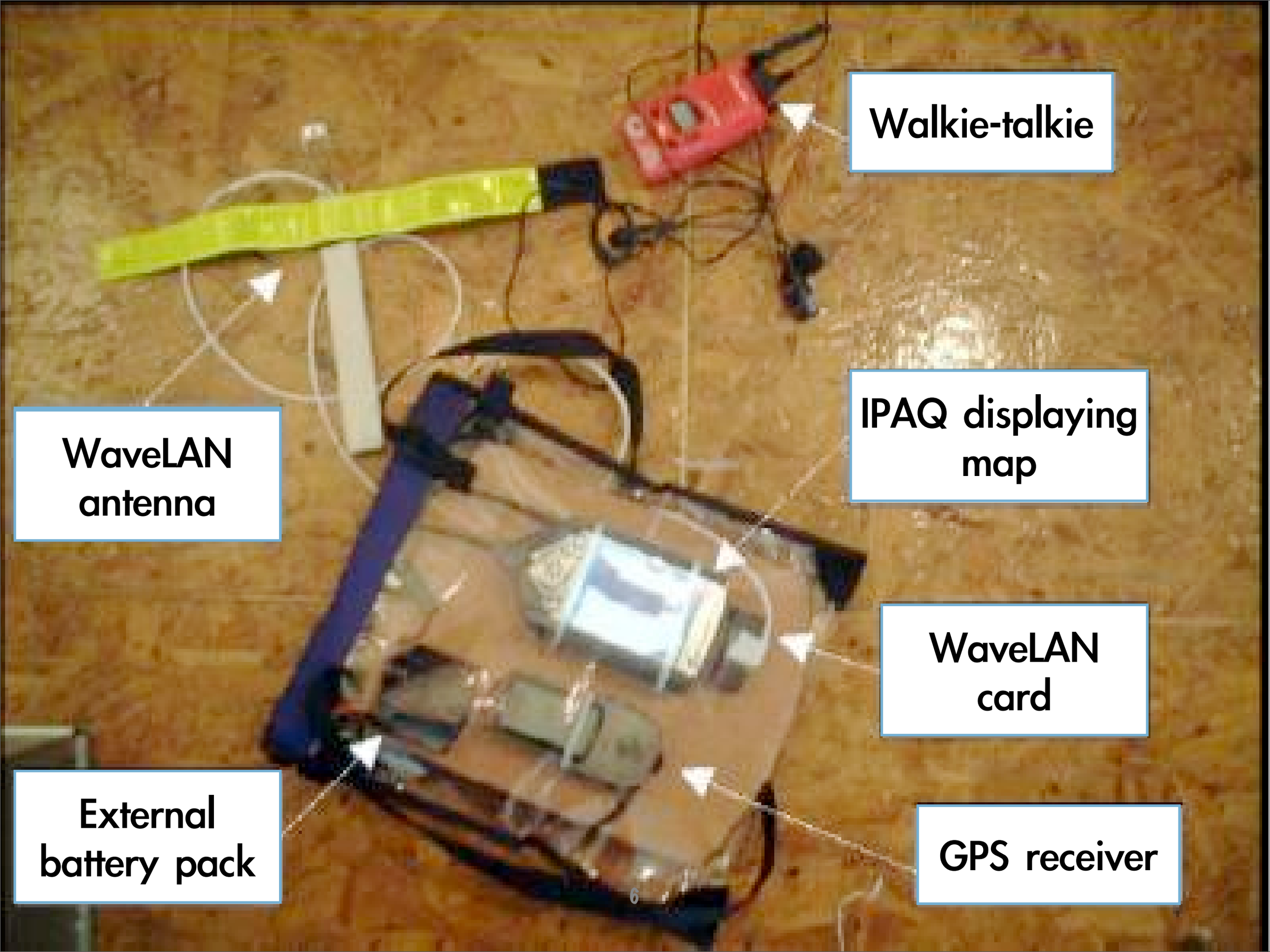

Walkie-talkie


Walkie-talkie
IPAQ displaying map


Walkie-talkie
IPAQ displaying map
WaveLAN card


Walkie-talkie
IPAQ displaying map
WaveLAN card
GPS receiver


Walkie-talkie
IPAQ displaying map
WaveLAN card
External battery pack
GPS receiver


Walkie-talkie
IPAQ displaying map
WaveLAN antenna
WaveLAN card
External battery pack
GPS receiver

Uncle Roy All Around You

Uncle Roy All Around You

* Successor of CYSMN

Uncle Roy All Around You

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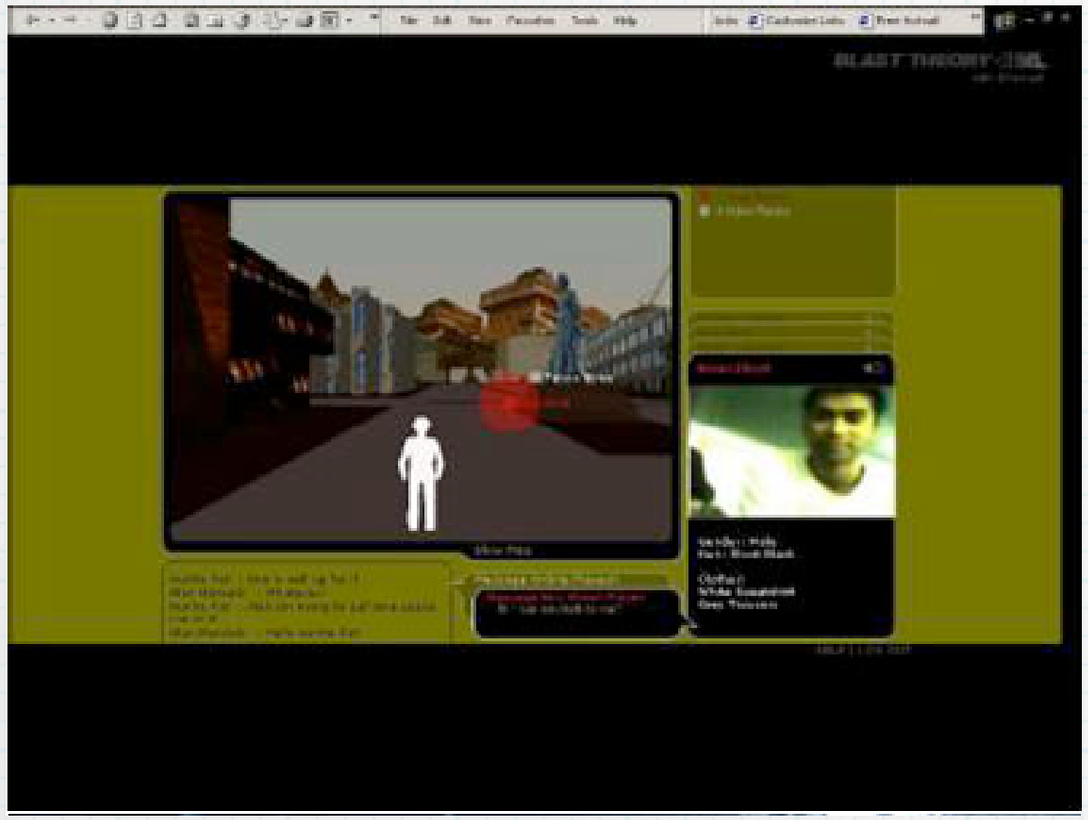
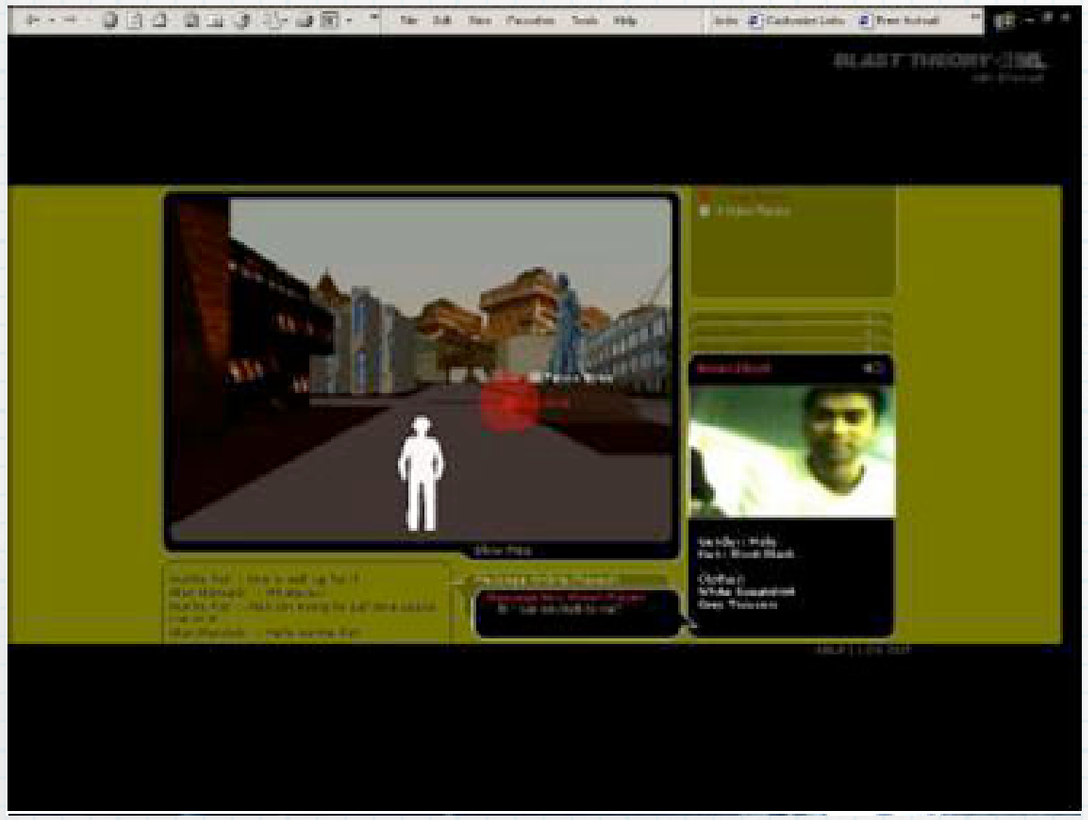
Uncle Roy All Around You



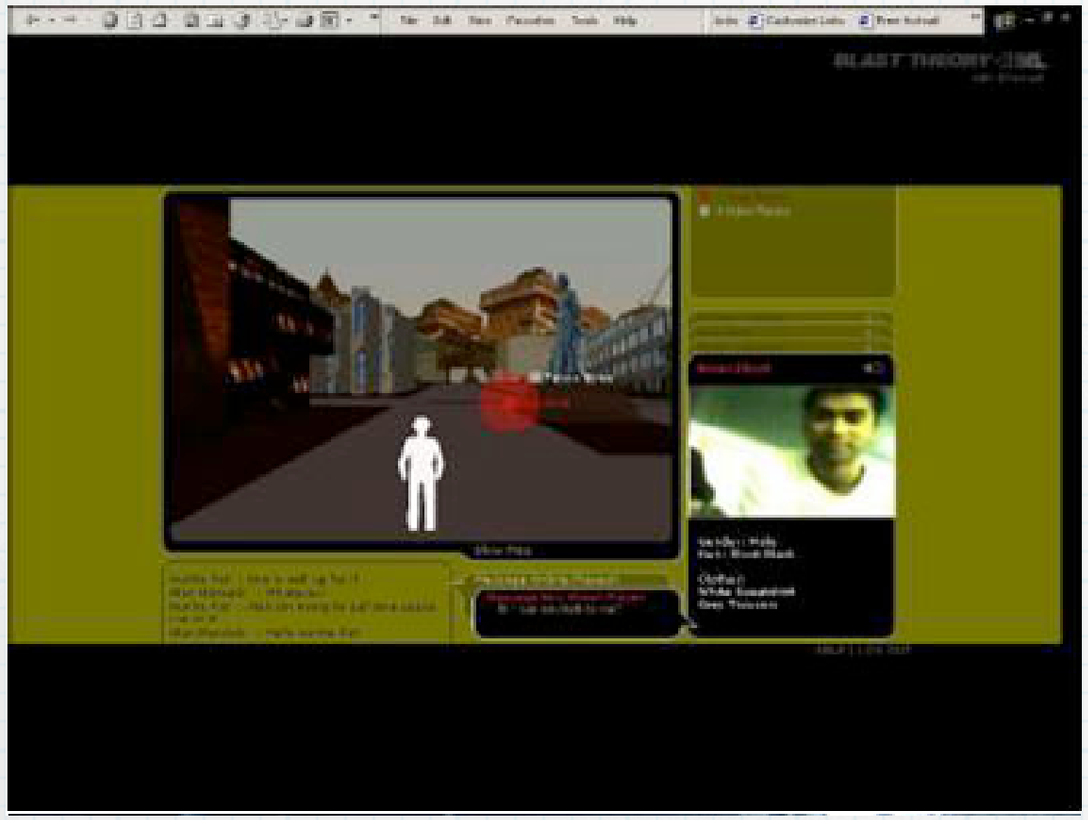
* Successor of CYSMN

Uncle Roy All Around You



* Successor of CYSMN
* Street Players & Online Players

Uncle Roy All Around You



* Successor of CYSMN
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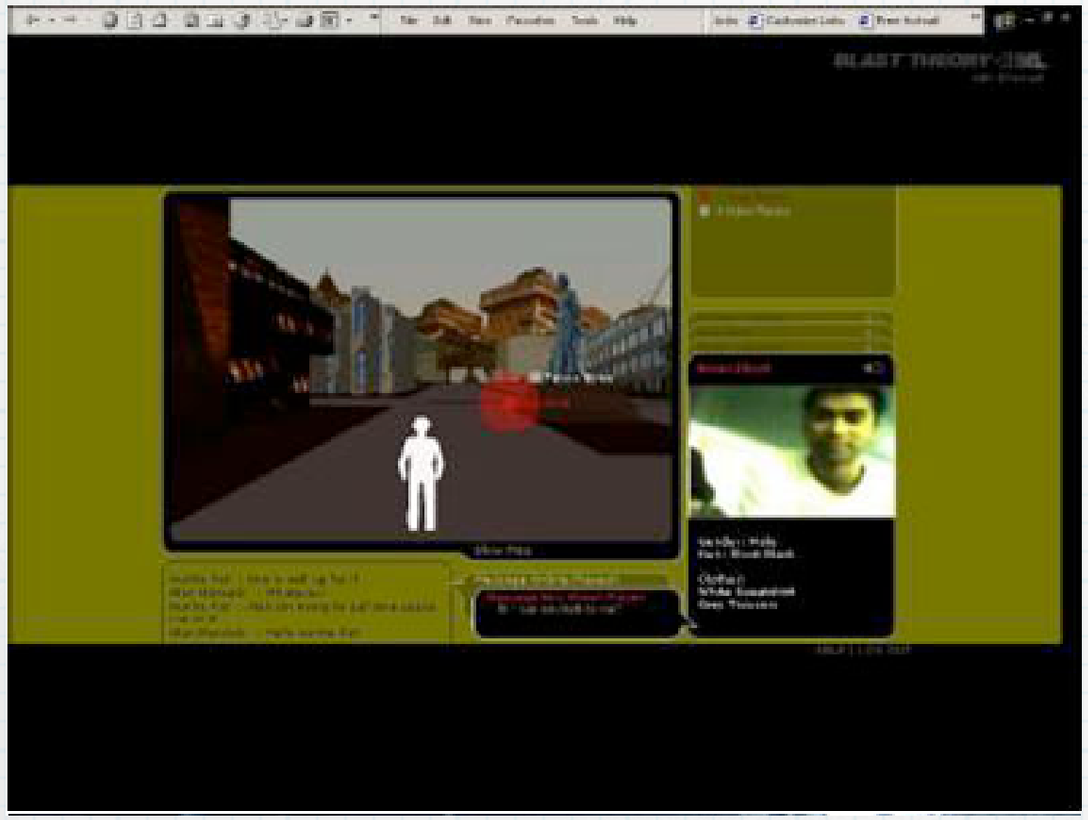
* Personal Belongings -> PDA

Uncle Roy All Around You



* Successor of CYSMN
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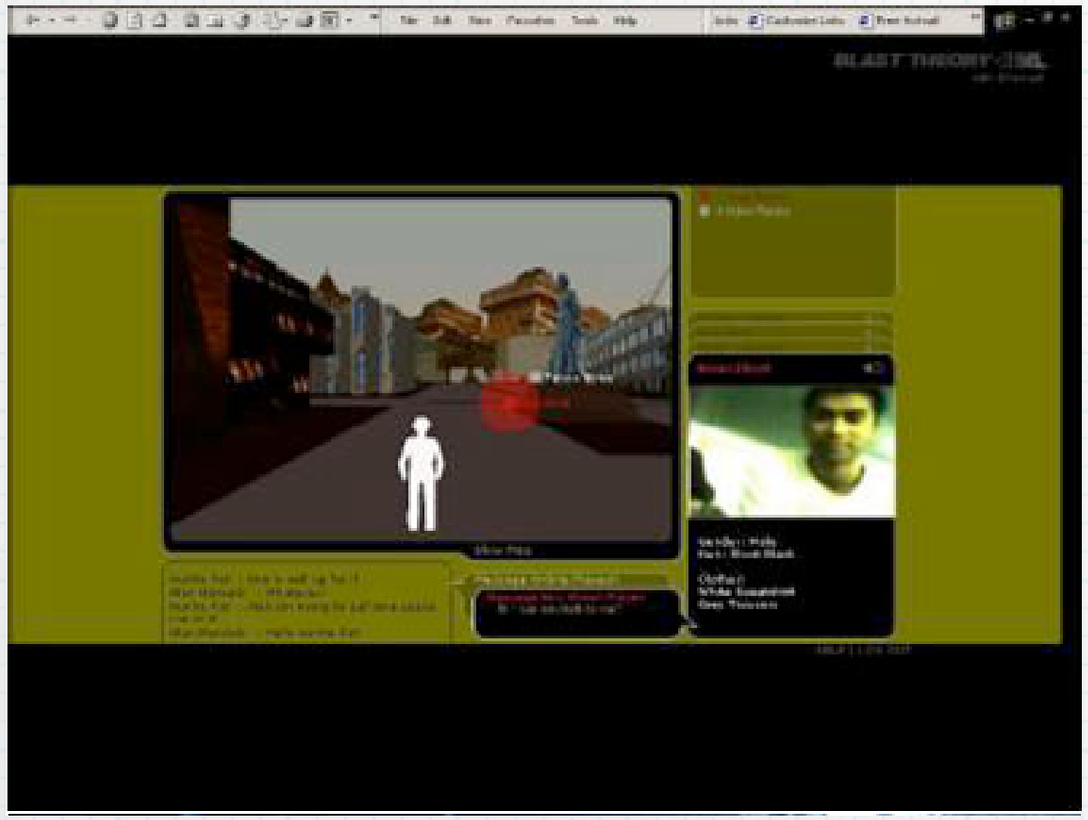
* Personal Belongings -> PDA
* Instructions on PDA by the system alias „Uncle Roy“

Uncle Roy All Around You



* Successor of CYSMN
* Street Players & Online Players
* Personal Belongings -> PDA
* Instructions on PDA by the system alias „Uncle Roy“
* Additional instructions by online players via text chat

Uncle Roy All Around You

Uncle Roy All Around You

Office

Uncle Roy All Around You

Uncle Roy All Around You

Telephone Booth

Uncle Roy All Around You

Uncle Roy All Around You

Limousine

Uncle Roy All Around You

Treasure

* Department of Computing Science, University of Glasgow (www.dcs.gla.ac.uk)

Treasure

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* Collecting virtual coins

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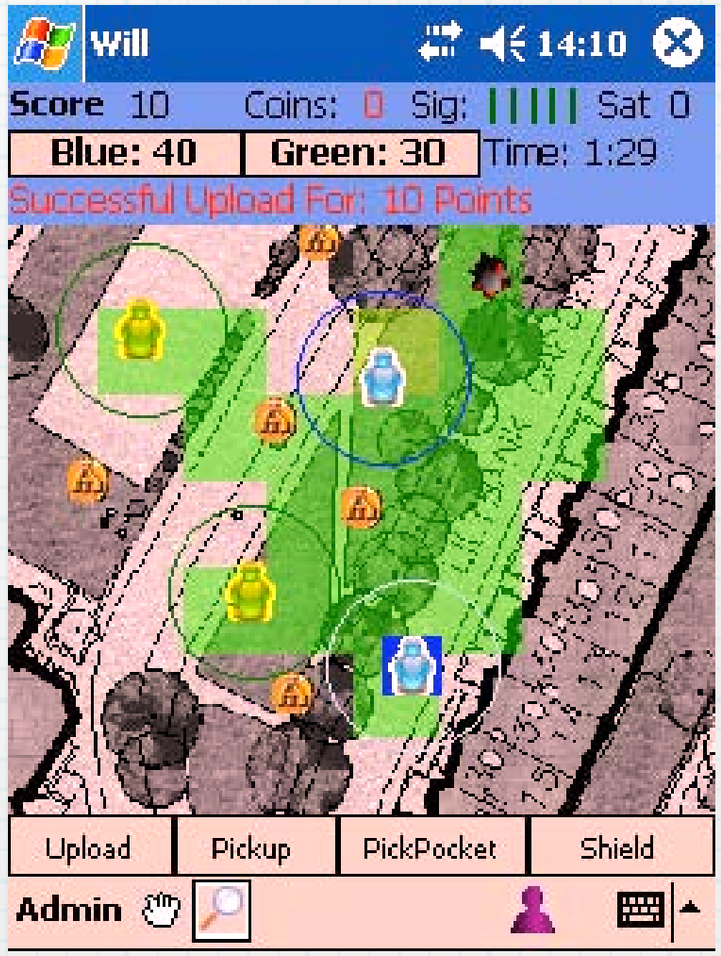
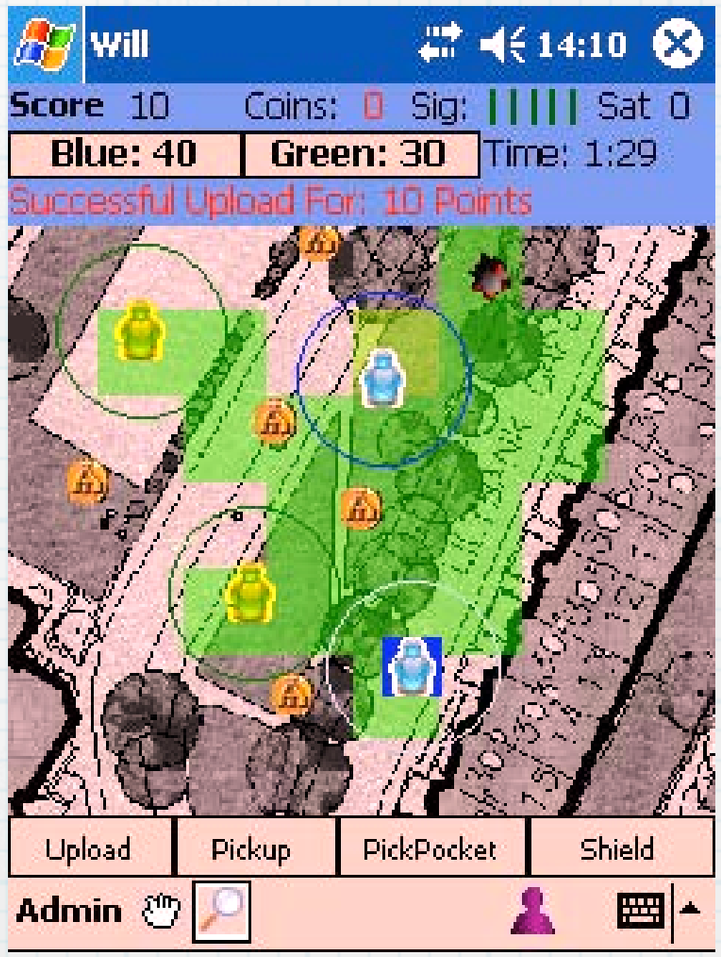


Treasure

* Department of Computing Science, University of Glasgow (www.dcs.gla.ac.uk)
* Collecting virtual coins
* Uploading coins to server



Treasure

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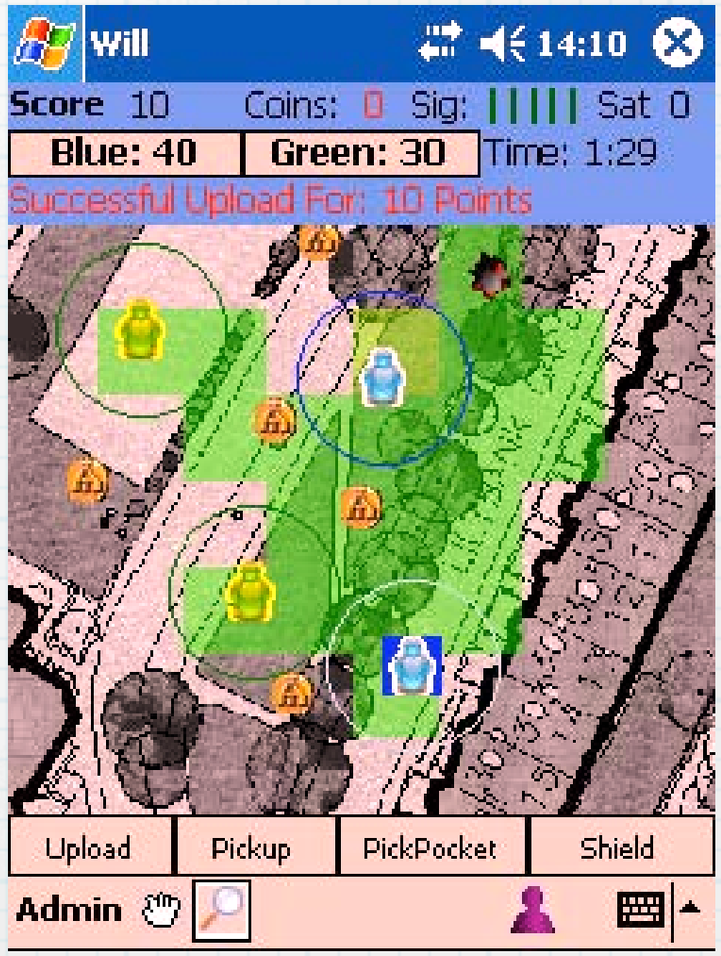
* Collecting virtual coins
* Uploading coins to server
* Teams of two



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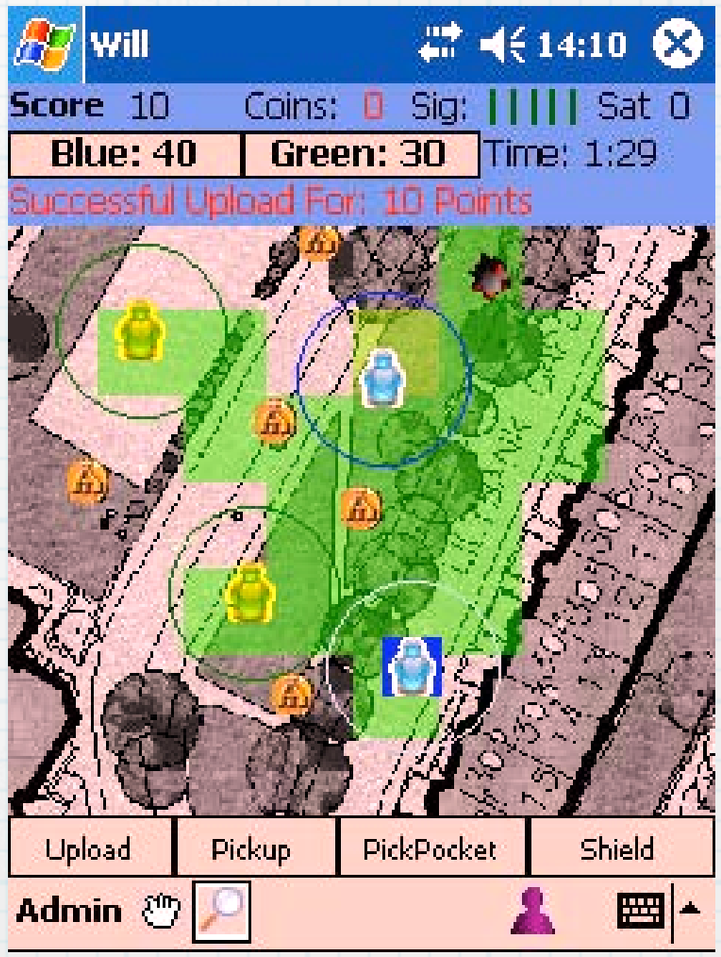
* Collecting virtual coins
* Uploading coins to server
* Teams of two
* Using seams in network



Treasure

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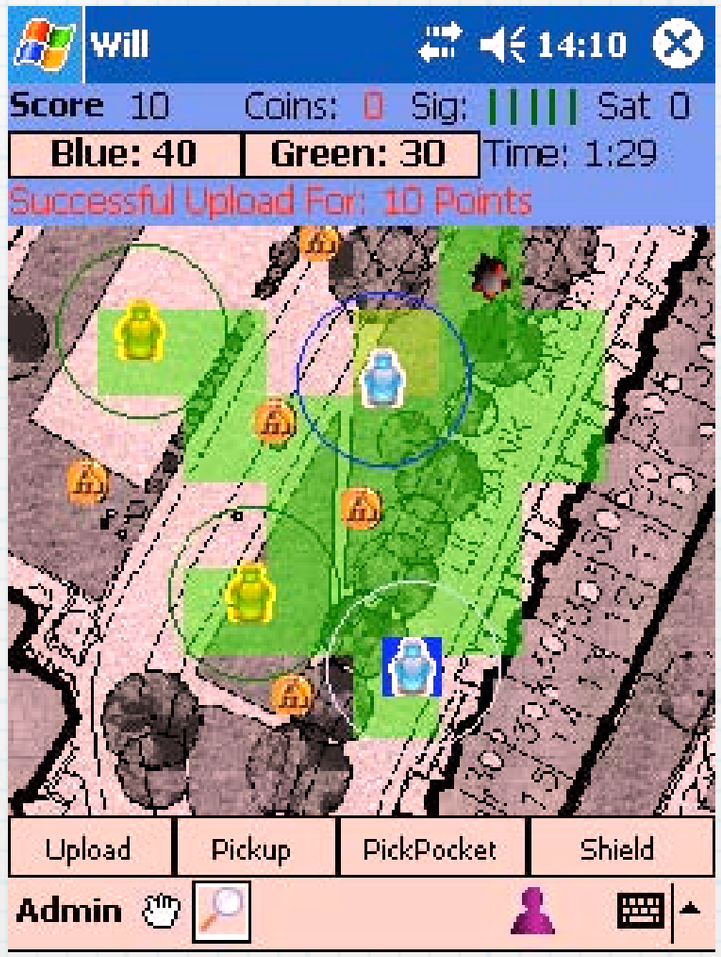
* Collecting virtual coins
* Uploading coins to server
* Teams of two
* Using seams in network
* Collaborative Upload, Pickpocketing



George Square System

George Square System

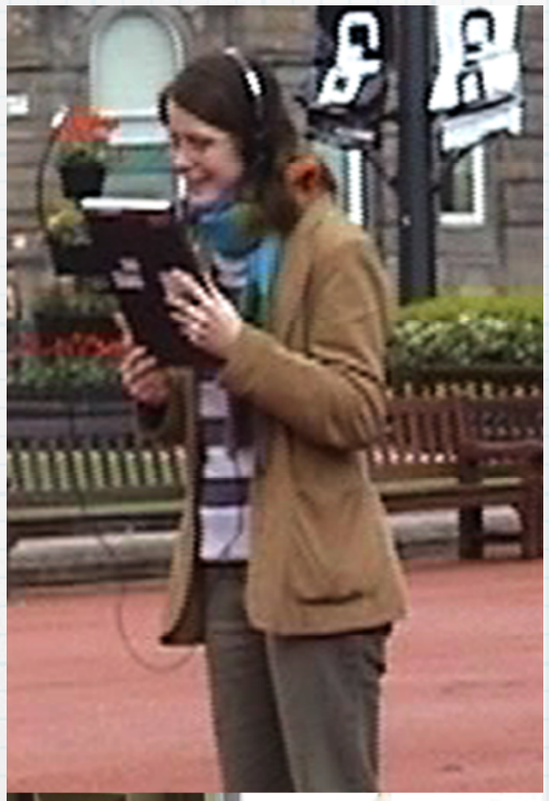
Collaborative visiting of a city

George Square System

Collaborative visiting of a city

Sharing experiences far and near

George Square System



Collaborative visiting of a city

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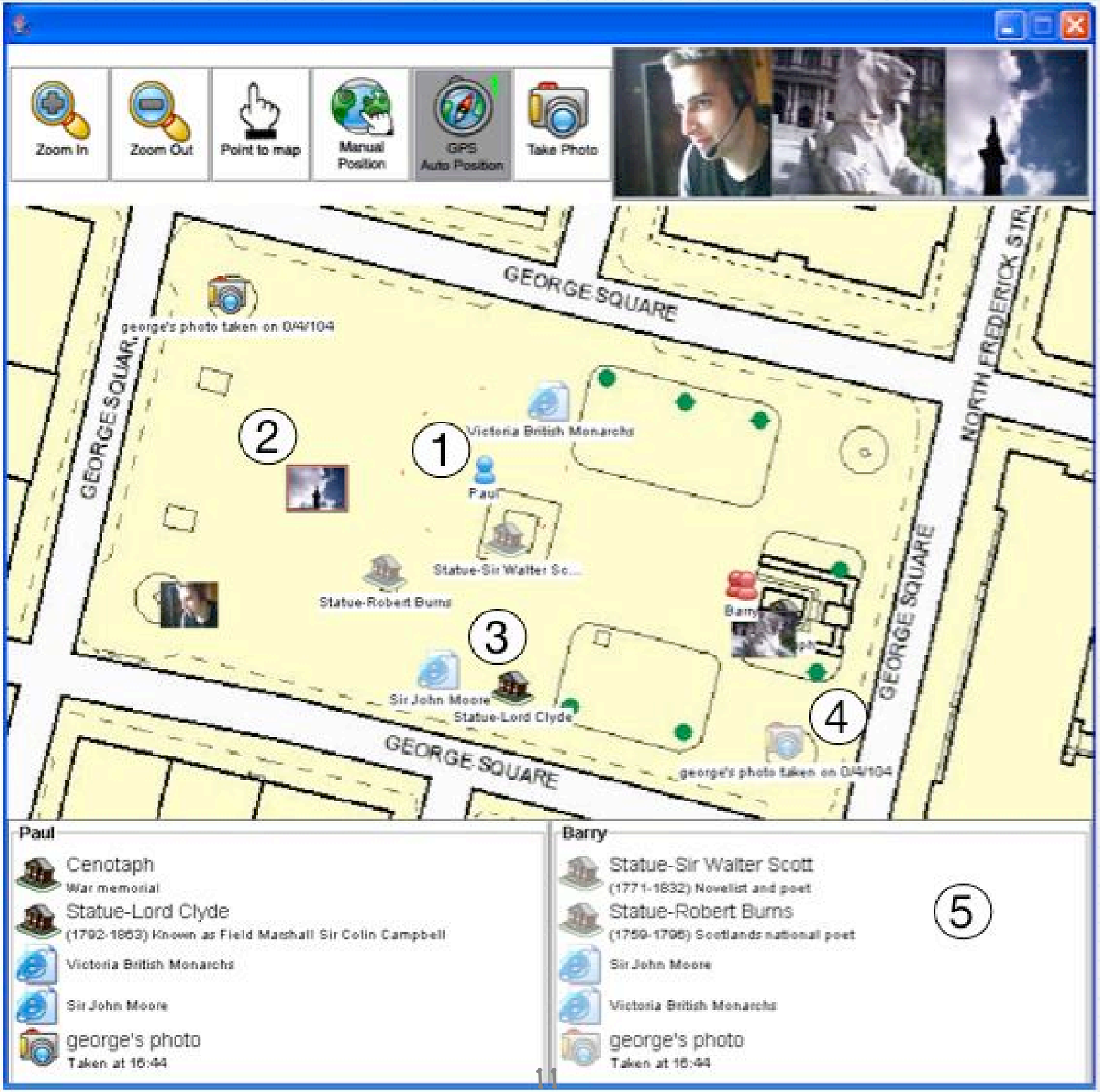
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Zoom Out
Point to map
Manual Position
GPS Auto Position
Take Photo
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NORTH FREDERICK STR.
GEORGE SQUAR.
george's photo taken on 04/104
Victoria British Monarchs
Paul
Statue-Sir Walter Sc...
Statue-Robert Burns
Barry
Sir John Moore
Statue-Lord Clyde
GEORGE SQUARE
GEORGE SQUARE
george's photo taken on 04/104
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Paul
Cenotaph
War memorial
Statue-Lord Clyde
(1792-1863) Known as Field Marshall Sir Colin Campbell
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Taken at 16:44
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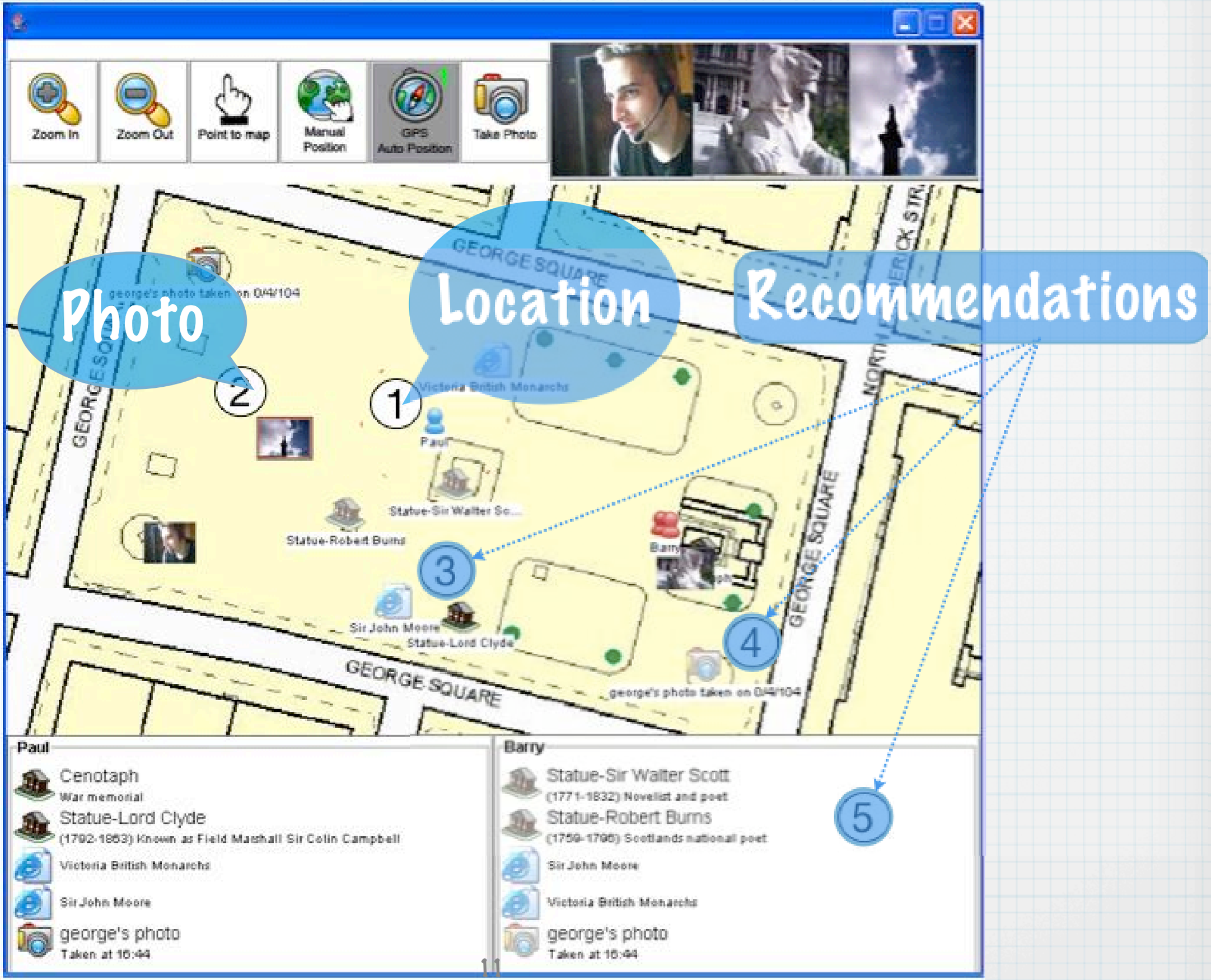
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Recommendations
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Features

Location Tracking GPS

Map server

Attached camera

Voice over IP

Features

Location Tracking GPS

Map server

Attached camera

Voice over IP

Recommendations

Web Page Generation

Travel Weblog

Pre/Post Visit

Features

mGroup

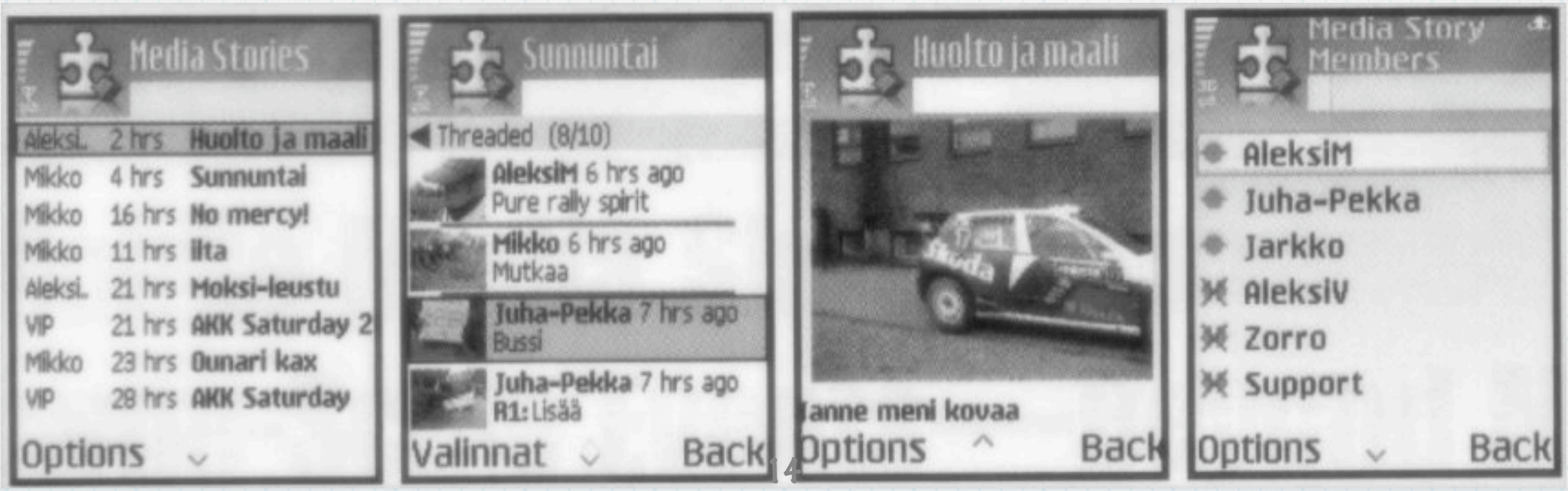
Helsinki Institute for Information Technology, Finland

Mobile media application

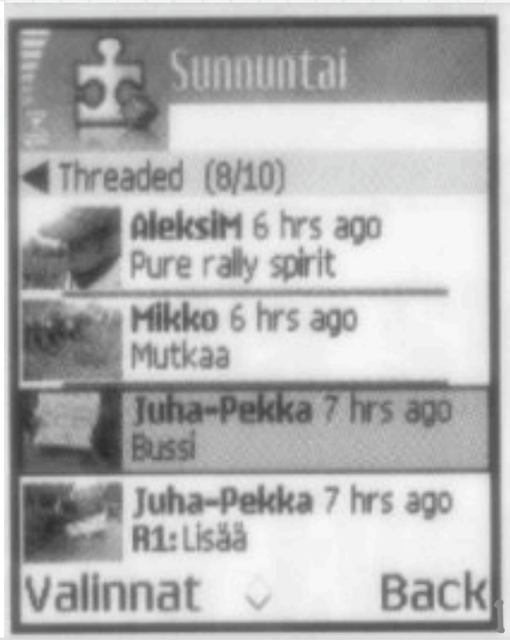
Supports shared experience of spectators in events

Sharing mobile media

adresses issues specific to events


Media Stories
Aleksi. 2 hrs Huolto ja maali
Mikko 4 hrs Sunnuntai
Mikko 16 hrs No mercy!
Mikko 11 hrs Ilta
Aleksi. 21 hrs Moksi-leustu
VIP 21 hrs AKK Saturday 2
Mikko 23 hrs Ounari kax
VIP 28 hrs AKK Saturday
Options
Sunnuntai
Threaded (8/10)
AleksiM 6 hrs ago
Pure rally spirit
Mikko 6 hrs ago
Mutkaa
Juha-Pekka 7 hrs ago
Bussi
Juha-Pekka 7 hrs ago
R1: Lisää
Valinnat
Back
Huolto ja maali
anne meni kovaa
Options
Back
Media Story Members
AleksiM
Juha-Pekka
Jarkko
AleksiV
Zorro
Support
Options
Back

Story based communication spaces



Story based communication spaces

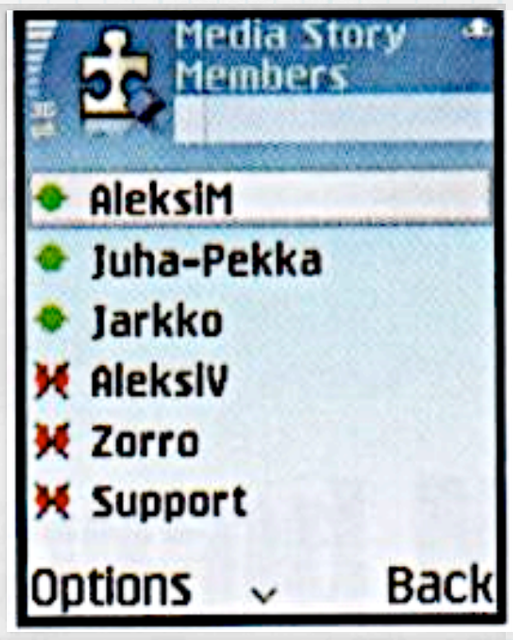
Read / Write messages

Story based communication spaces

Read / Write messages

Story based communication spaces

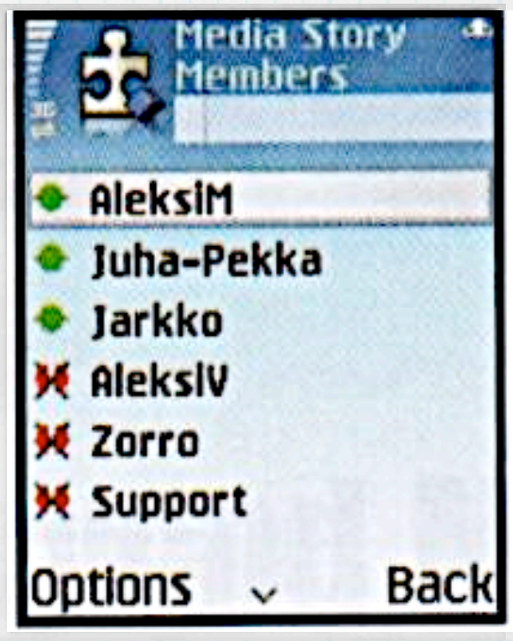
Read / Write messages



Story based communication spaces

Read / Write messages

Automatic album creation for post-event re-experience



	CYSMN	Uncle Roy	Treasure	George Square	mGroup	flickr
Tracking	GPS	Self	GPS	GPS + Self		
Network	WiFi	GPRS	WiFi	WiFi	GPRS	GPRS
Comm-Channels	Text, Voice, Photo	Text, actors	Text	Voice, Photo	MMS	Photo
Commitment	Very Strong	Very Strong	Strong	Medium	low	low
Tech. Level	Very High	Very High	Very High	Very High	low	very low

	CYSMN	Uncle Roy	Treasure	George Square	mGroup	flickr
Tracking	GPS	Self	GPS	GPS + Self		
Network	WiFi	GPRS	WiFi	WiFi	GPRS	GPRS
Comm-Channels	Text, Voice, Photo	Text, Voice, Photo, actors	Text, Voice, Photo	Voice, Photo	MMS	Photo
Commitment	Very Strong	Very Strong	Strong	Medium	low	low
Tech. Level	Very High	Very High	Very High	Very High	low	very low

Complexity

Online Photo Management

Online Photo Management

„In the era of film, we printed every shot.

Online Photo Management

„In the era of film, we printed every shot.

And filled our closets with photos no one could see.“

Online Photo Management

„In the **era of film**, we printed every shot.

And filled our **closets** with photos no one could see."

„In the **digital era**, we print fewer then 1 in 10.

Online Photo Management

„In the **era of film**, we printed every shot.

And filled our **closets** with photos no one could see."

„In the **digital era**, we print fewer then 1 in 10.

And fill our **computers** with photos no one can see."

Online Photo Management

* big resonance

1

* public showrooms fastest-growing social network on the Web

2

* digital cameras are a de-facto standard for mobile devices

* combine the two sectors

Online Photo Management

* big resonance

1

* public showrooms fastest-growing social network on the Web

2

* digital cameras are a de-facto standard for mobile devices

* combine the two sectors

from Yahoo

comments, notes, tags

many tools

Flickr.com

The Fun Factor (Design Tips and Design Patterns)

* User-/Player-centred Design
* Ethnographic Analysis
* Use iterative DIA cycle (Design, Implementation, Analysis)

The Fun Factor
(Design Tips and Design Patterns)

* Problems concerning Coverage and Preciseness with GPS, WiFi, and GPRS

The Fun Factor
(Design Tips and Design Patterns)

* Problems concerning Coverage and Preciseness with GPS, WiFi, and GPRS

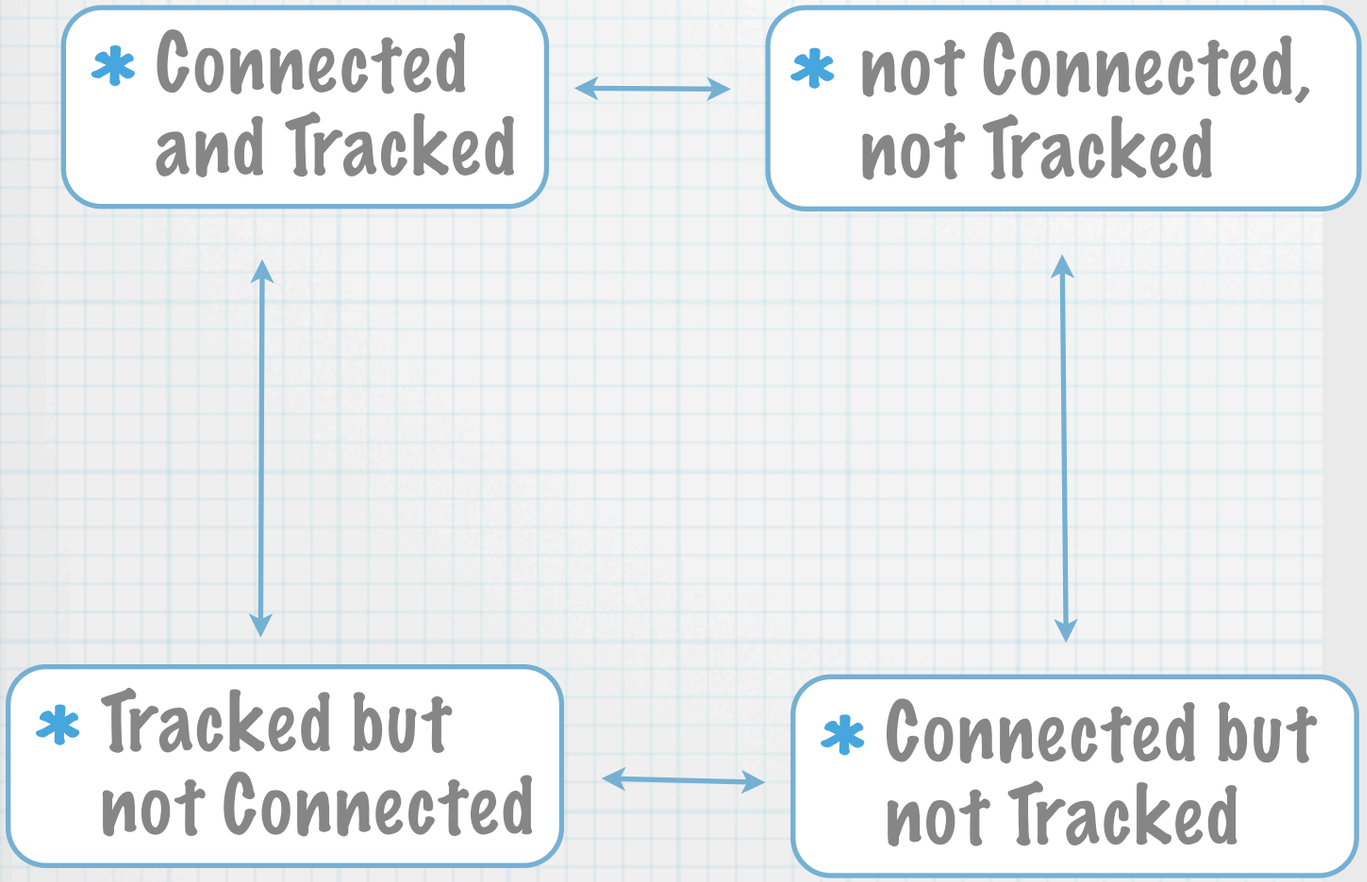
* Only slow overcoming of technical issues

The Fun Factor
(Design Tips and Design Patterns)

* Problems concerning Coverage and Preciseness with GPS, WiFi, and GPRS
* Only slow overcoming of technical issues
* Therefore: Consider "Four States of Being"

The Fun Factor (Design Tips and Design Patterns)

The Fun Factor
(Design Tips and Design Patterns)



The Fun Factor
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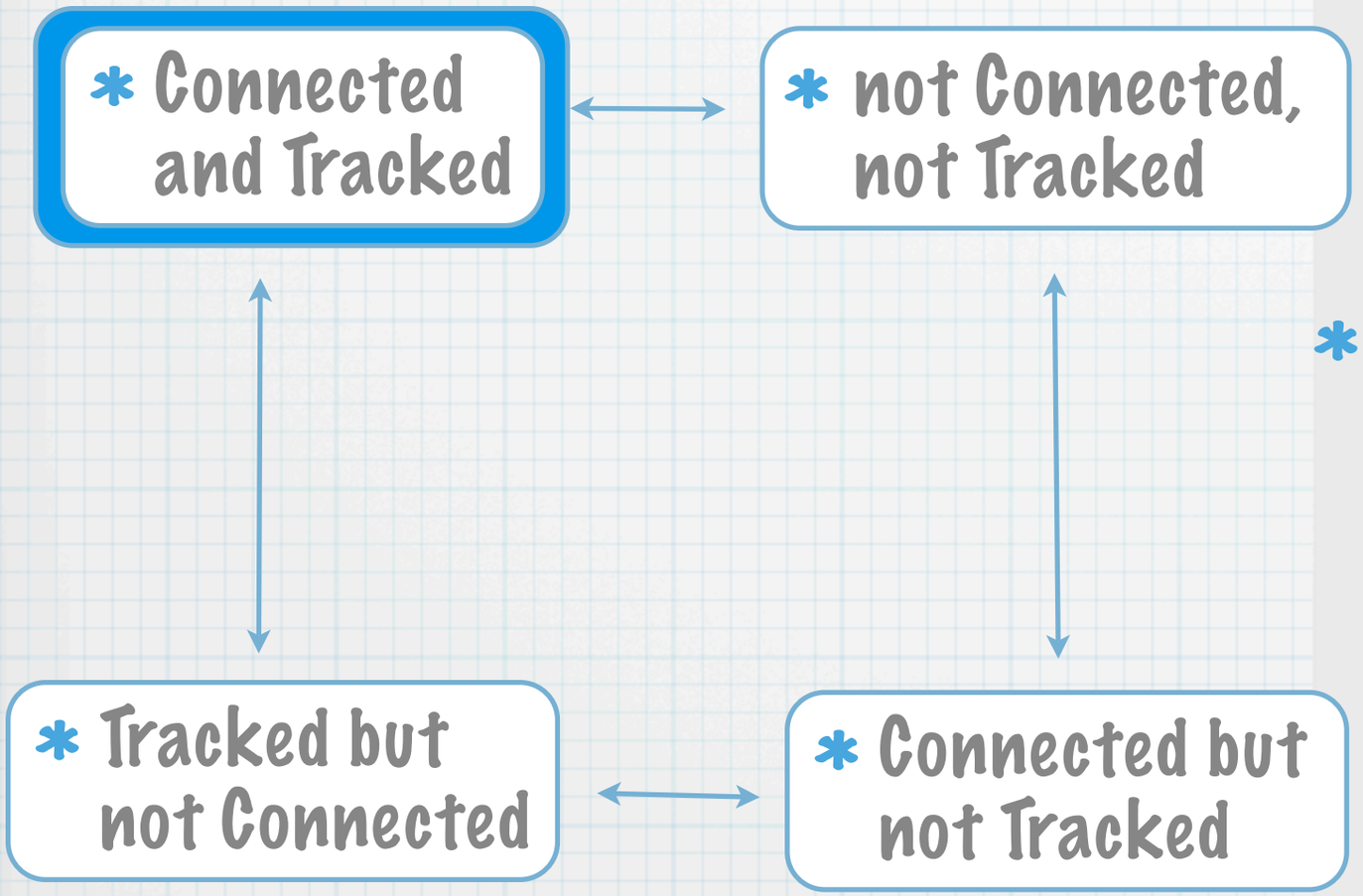
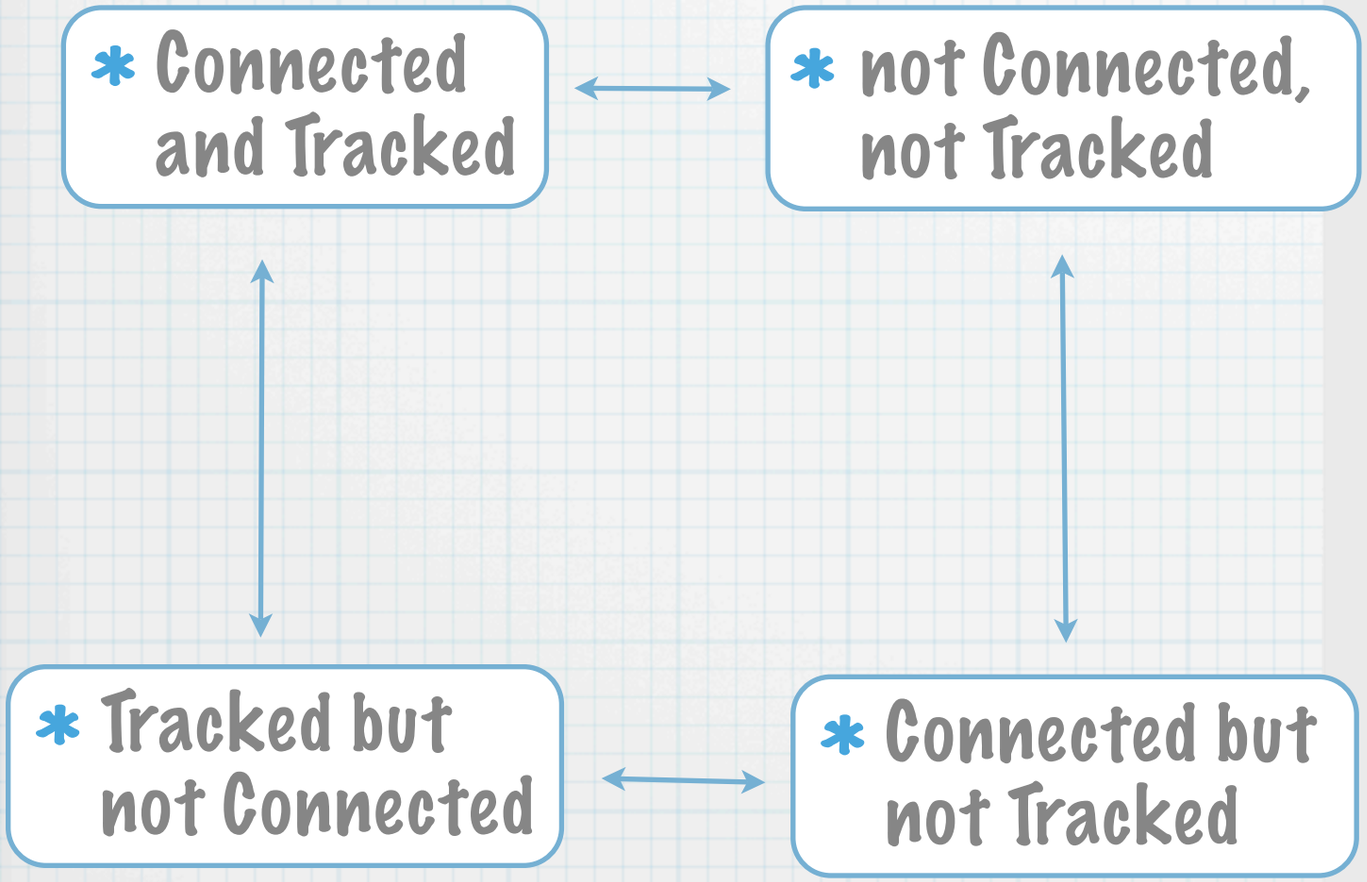


* Network and positioning system coverage

The Fun Factor
(Design Tips and Design Patterns)



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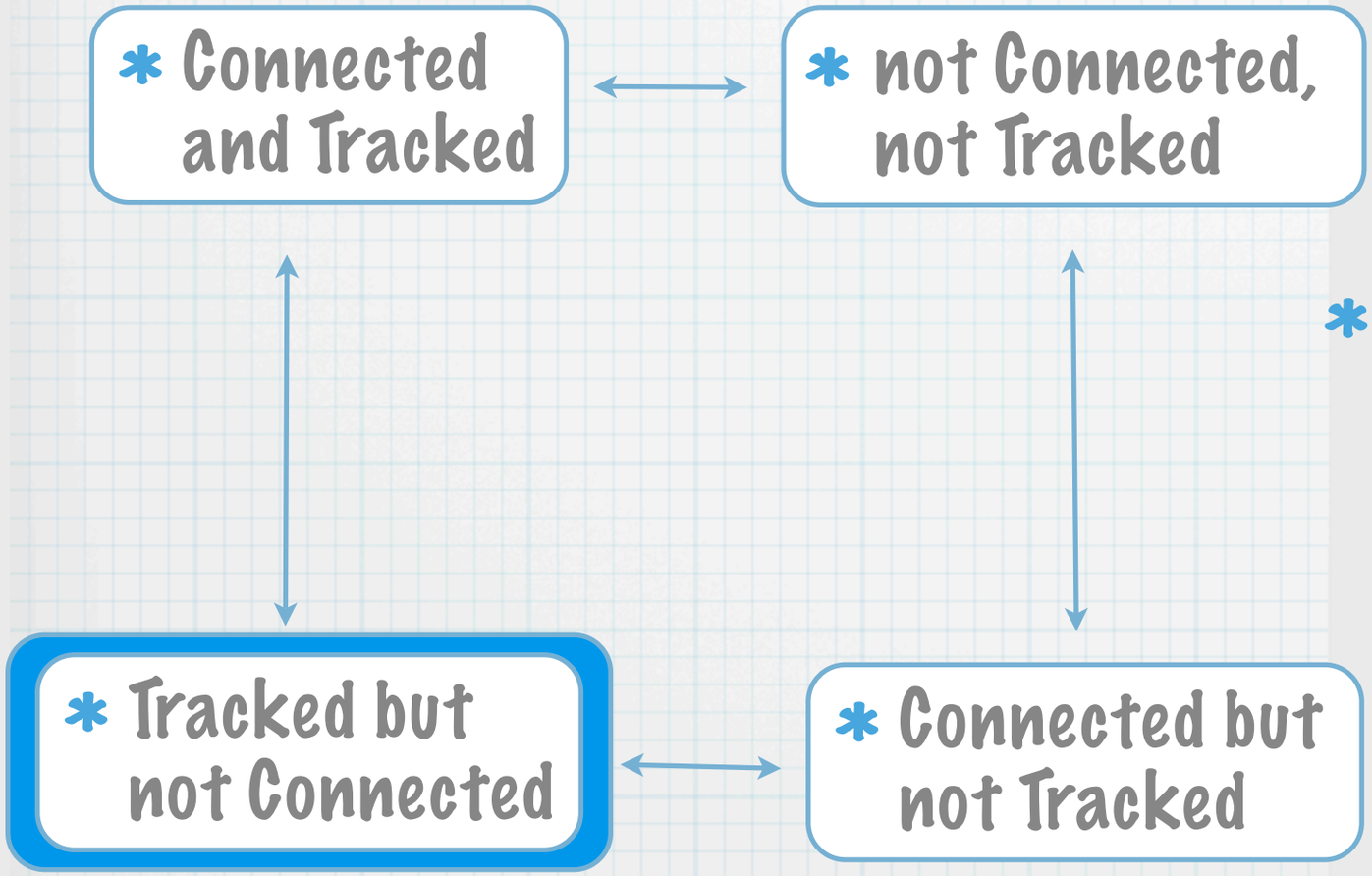
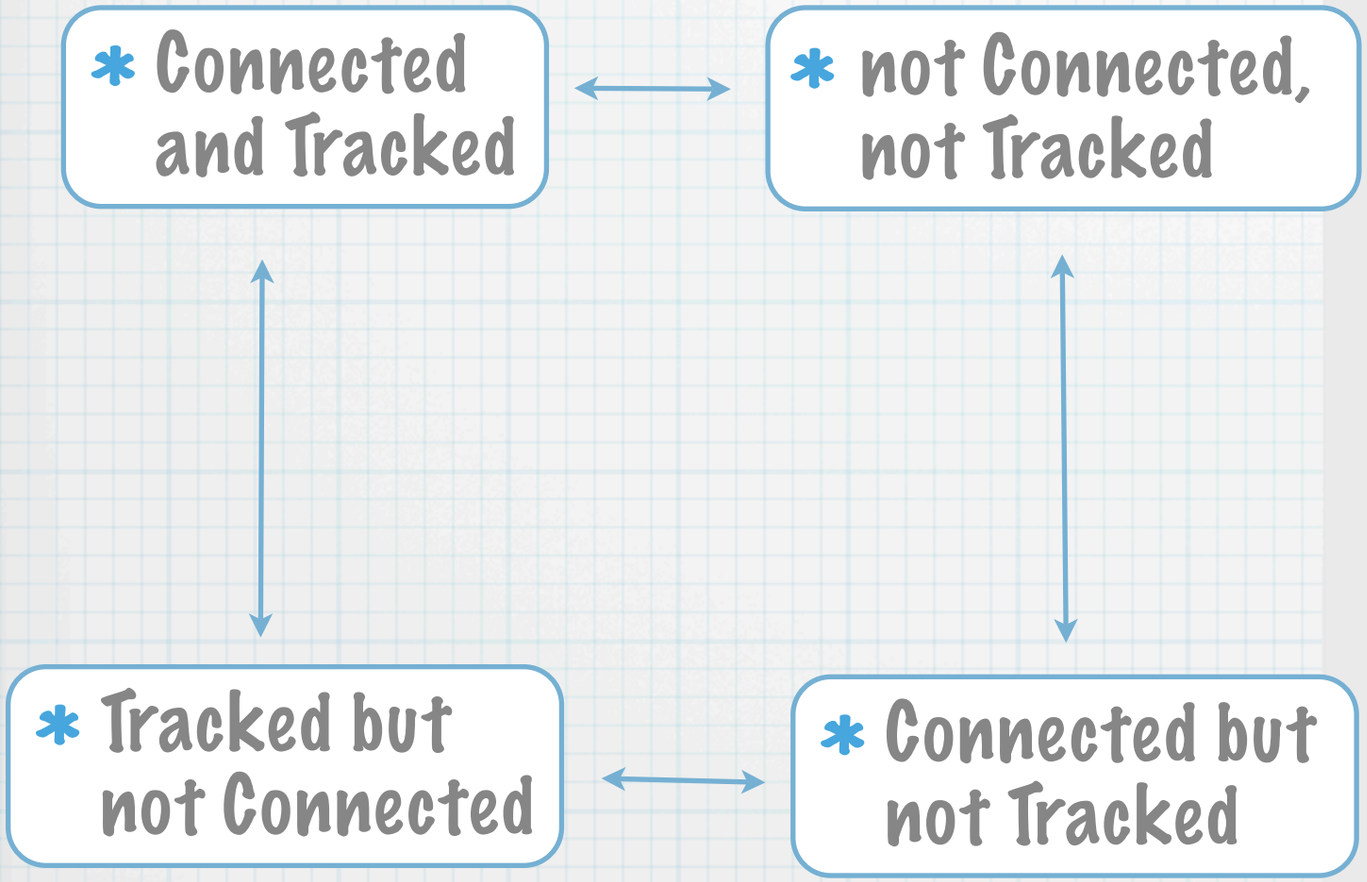
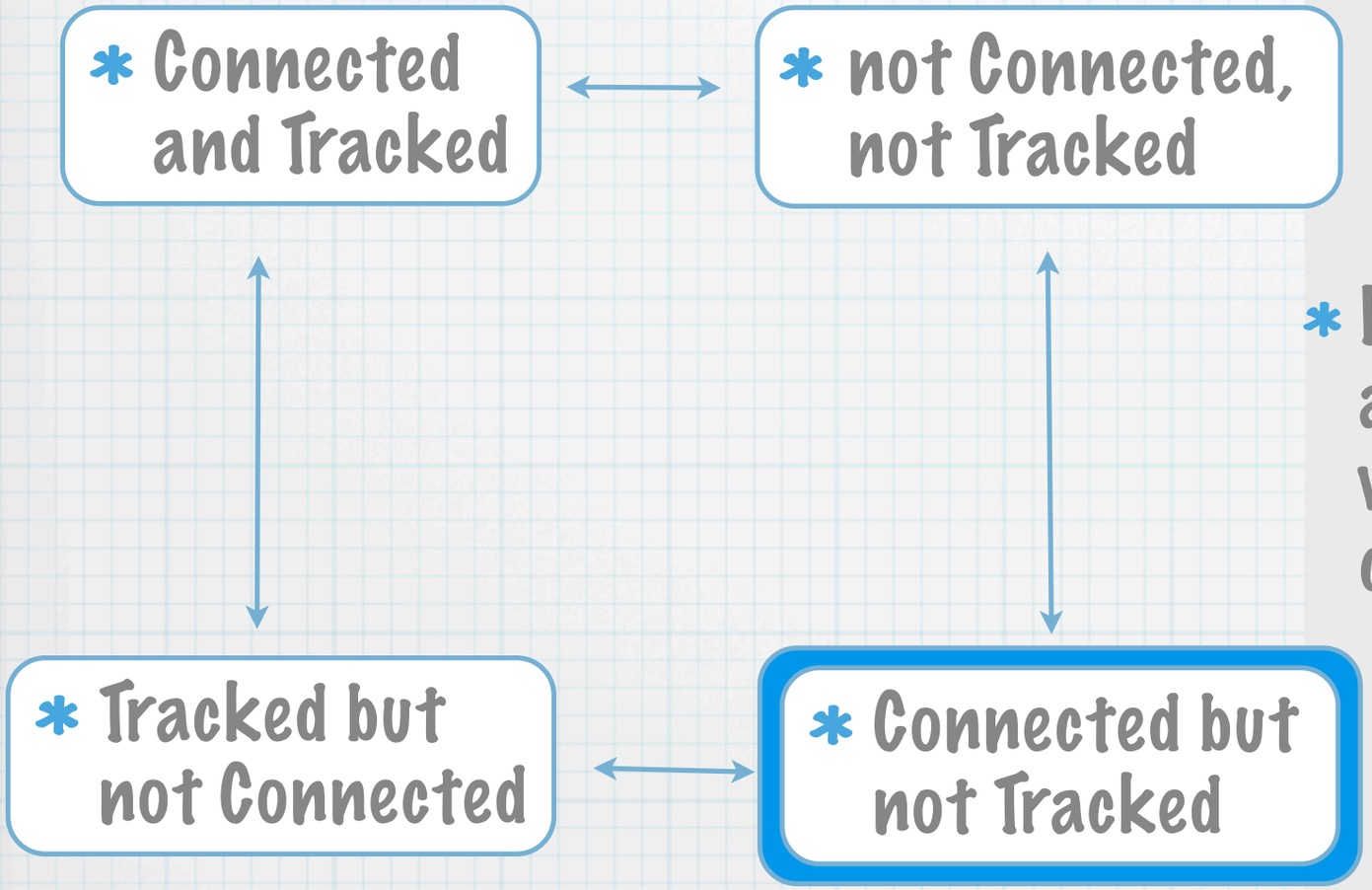


* Player can see position updates on local device, but position is not transmitted to other players

The Fun Factor
(Design Tips and Design Patterns)



The Fun Factor
(Design Tips and Design Patterns)



* Player can communicate and exchange updates with other players, but cannot see her position

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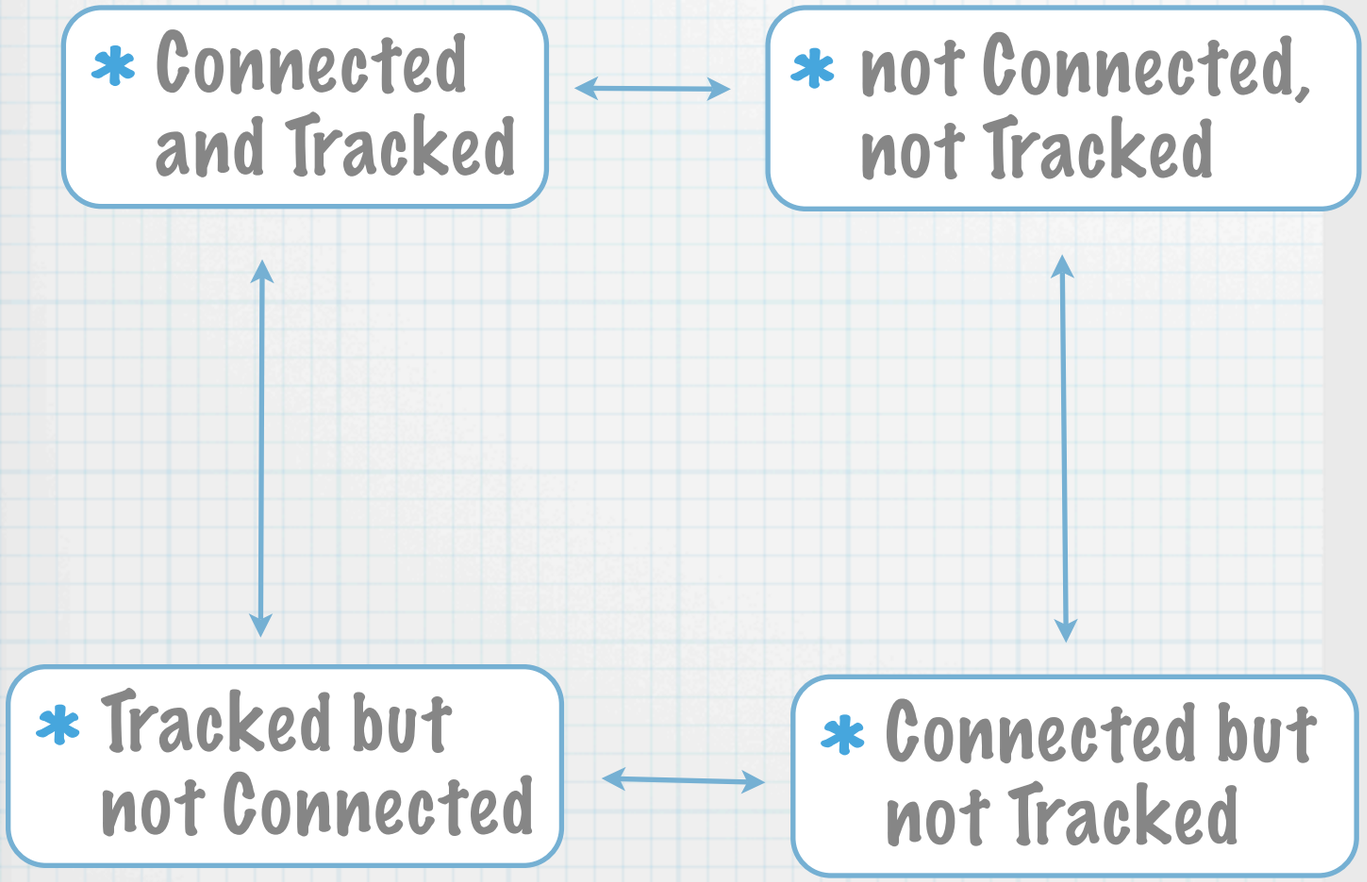

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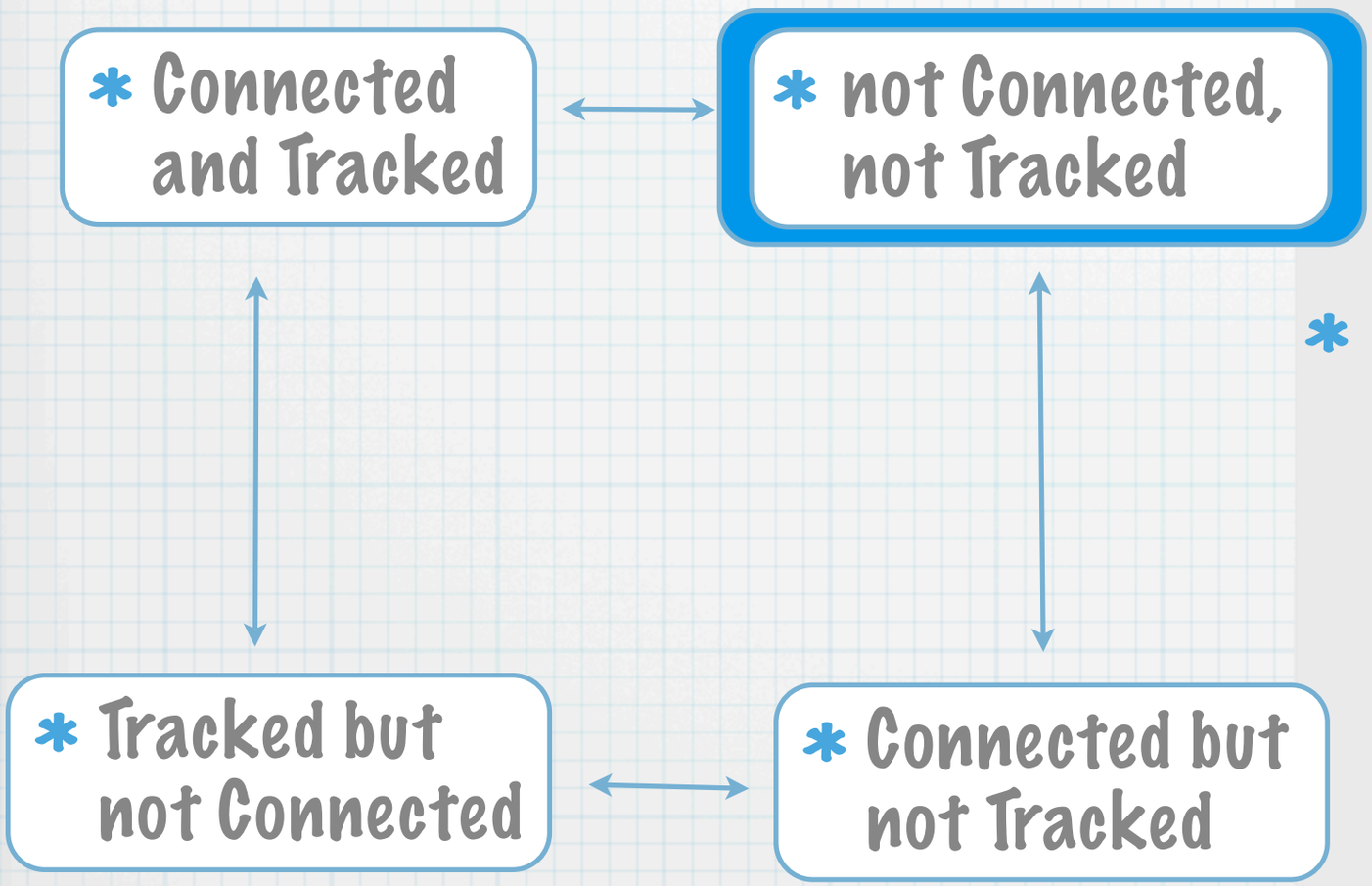

* Player can neither see her position, nor communicate with others

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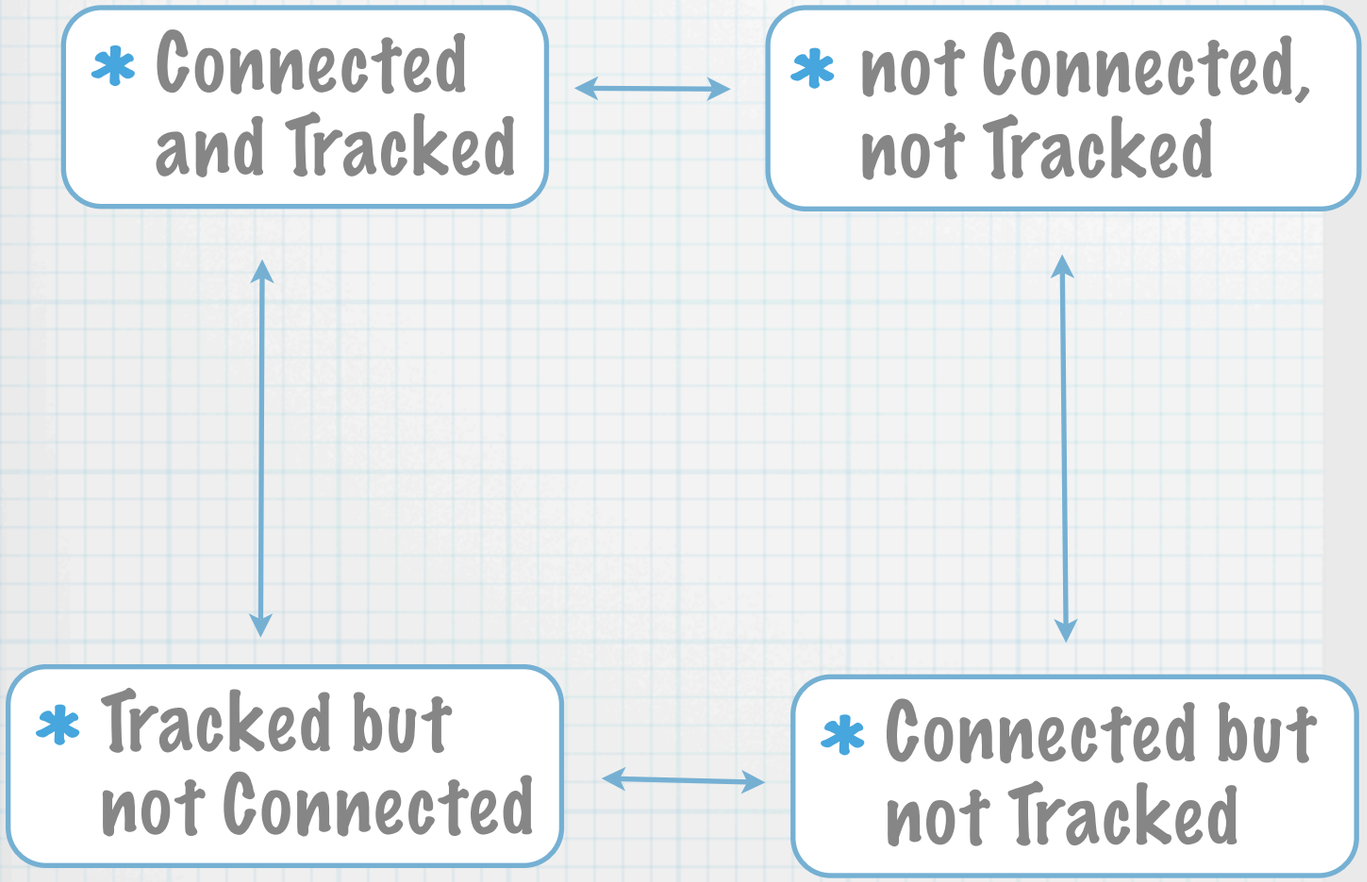

Fun Factor: Uncertainity?

- ☐ Remove
- ☐ Hide
- ☐ Manage
- ☐ Reveal
- ☐ Exploit

Fun Factor: Uncertainity?

- [x] Remove
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* Improve technology (long perspective)
* Choose appropriate game areas and playing times (short perspective)

Fun Factor: Uncertainity?

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* Avoid creating wrong expectations (Norman)
* Examples from CYSMN:
  -impossible GPS readings
  -„catching“-> „seeing“
  -walkie-talkie audio stream
* Uncle Roy breaks with this principle

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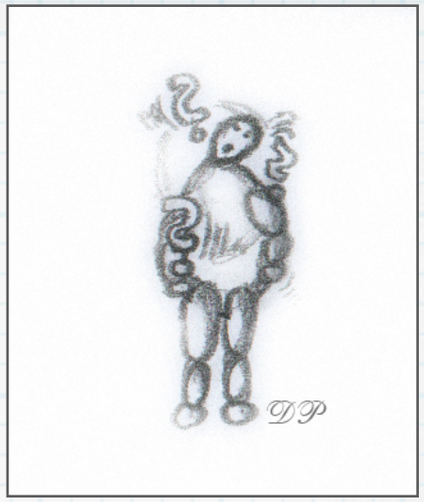

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* Fall back to low-tech solutions (GPS -> self reporting, e.g. George Square System)
* Orchestration from behind the scenes

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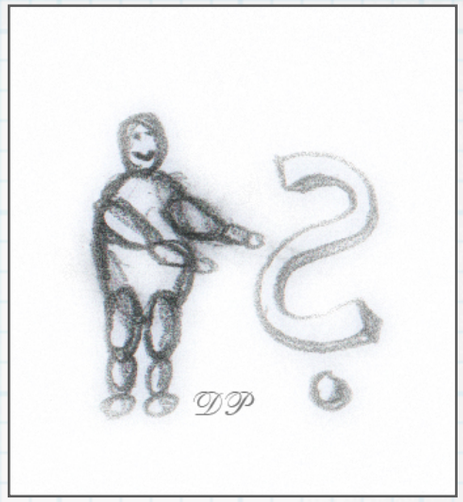

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* „Make it visible!“- (Norman)
* Give information about current game state:
  * signal strength
  * preciseness
  * probability clouds

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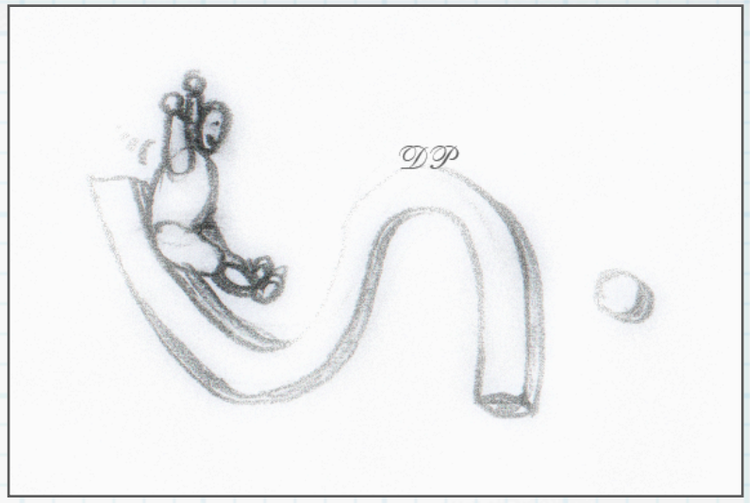

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* Treasure uses this „seamful“ approach
* Use lack of network availability **tactically** and **strategically**
  (...easier if you have information about the network availability -> Reveal)

Fun Factor: Tactics and Strategies

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* **Strategies**: well-considered or planned ways of playing the game. They have a **longer perspective** and **need a longer knowledge and deeper understanding** of the game system and the game rules than tactics.

Fun Factor:
Tactics and Strategies

- ☐ The 180° Turn
- ☐ Spy Look
- ☐ Collaborative Network Search
- ☐ Hit and Run
- ☐ Taking, Finding, ...
- ☐ Helping other players
- ☐ Hunters or Gatherers

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Taking evasive action:

DAVE: I'M IN THE SOUTH

ANDREW: RUNNER 4 IS IN THE HOTEL CAR PARK

DAVE: ACTION

TOMMIE: CHRISTINE LOOK RIGHT

ANDREW: RUN FOR YOUR LIVES!

JULES: RUN BABY RUN!

CHRISTINE: THANKS!

ANDREW: RUNNER 4 IS WEST OF THE SWINGS

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Finding other players:

AMMA: RUNNING AROUND TO FIND ANNA. DOES ANYBODY SEE HER?

ROBERT: ANNA IS MOVING TOWARDS HOTEL NEW YORK

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Meeting other players:

VESPER: LET'S ALL GATHER - MAKES THINGS MORE EXCITING

ANNICK: WHERE?

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Helping other players to avoid runners:

SAAB: MIKE MEET ME AT CAFE ROTTERDAM

MIKE: SORRY, STALKING ANNA

ANNA: THAT'S O.K MIKE

SAAB: STOP STALKING HER THEN

MIKE: ANNA HAS A NICE BUTT

ANNA: HOW DO YOU KNOW?

MIKE: BIG IMAGINATION

ANNA: WELL YOU'RE RIGHT

SAAB: MIKE WATCH THE RUNNER!

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Hunters - people who boldly collected lots of coins over a wide area and uploaded only seldom, but then being very careful not to be pickpocketed during the upload process

Gatherers - players who uploaded every coin directly, were very worried about being pickpocketed, and left the network coverage seldom

In overall Hunters more successful

The Fun Factor (Design Patterns)

* Project report to Nokia Research Center, Finnland

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* Then PMGs might become **commercially successful**