

How to Steer Characters in Group Games

Ilham Abiyasa Surhadi

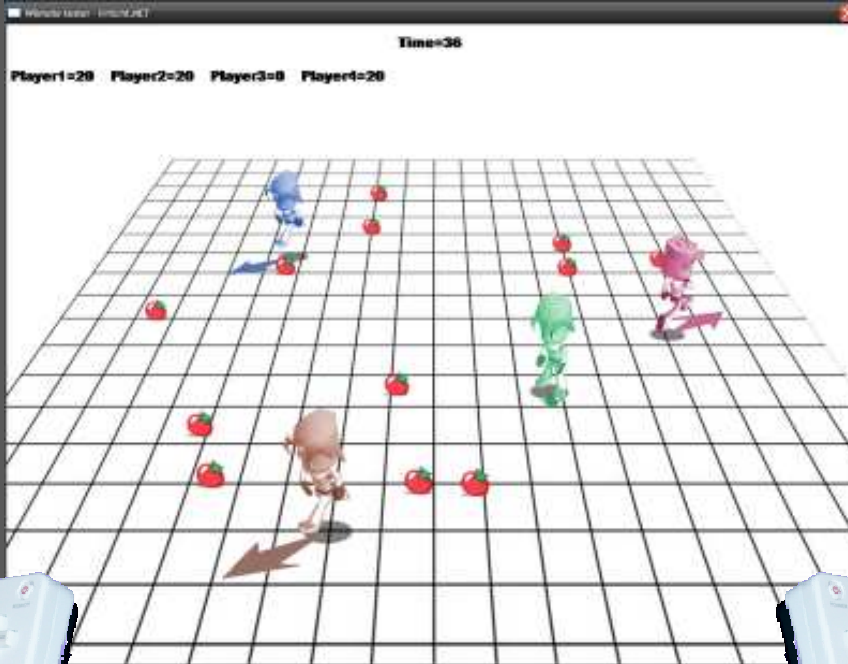
Universität Bremen

Jörn Loviscach (presenter)

Hochschule Bremen

<http://j3L7h.de>

**Ugly
Low-
Bandwidth
Version**



Outline

1

Background

group gaming, related work, overview

2

Prototype

system architecture, game design, control

3

Experiment

results, conclusion

1 Background

Group Gaming

what is it?

- Game played by a group of people
- May superficially look like a contest
- But may be more about having fun together

Focus of this work:

- Casual audience
- Large-screen video game

Related Work

Possible now thanks to inexpensive technology:
Each player controls an individual character.

Before only:
(Subgroups of) the audience share control.

Related Work

Examples:

Carpenter (1994, 2001)

cinematrix

Maynes-Aminzade et al. (2002)

three types of interaction using image processing

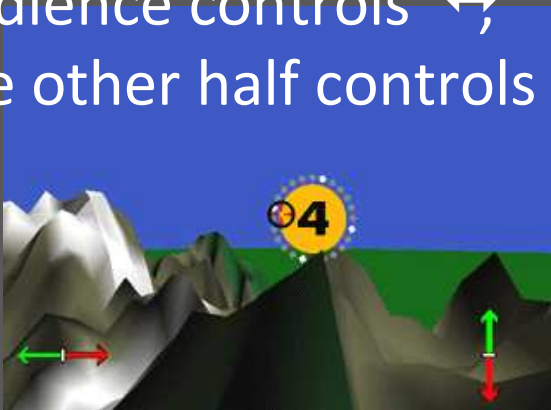
Feldmeier & Paradiso (2004)

cheap disposable wireless device

Cinematrix

the device

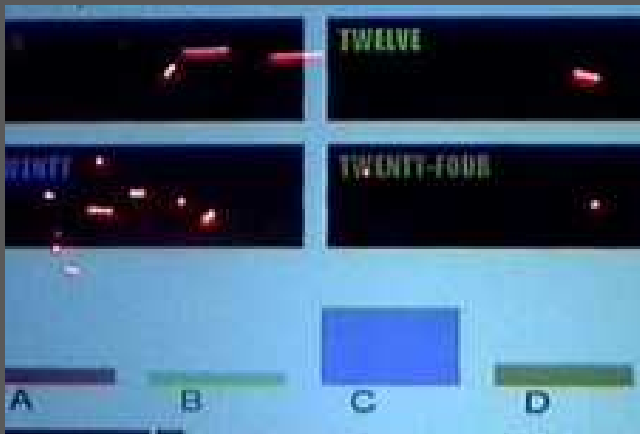
- Paddles with two reflective sides
- “Cats and Dogs”: collaborative Pong
- AirStrike: one half of the audience controls \leftrightarrow ; the other half controls \updownarrow



Maynes-Aminzade et al.

three interaction methods

- Audience movement tracking
- Object shadow tracking
- Laser pointer counting



Introducing the Wii Remote



Wii Remote

what is it?

Nintendo Wii

attracts casual gamers and non-gamers

3D accelerometer

shake, tilt, twist, swing

IR pointing device

point and pull the trigger

Wii Remote

why the buzz?

Inexpensive

sensors + wireless + ... = 40 EUR

One-hand game controller

associated with physical games (↔ Sony SIXAXIS)

Programming libraries

hacked for academic and hobbyist projects

Questions

group games & the Wii Remote

Which type of gesture?

Many sensors available on the Wii Remote ...

Which type of cooperation between players?

None? Pairs? Triples?

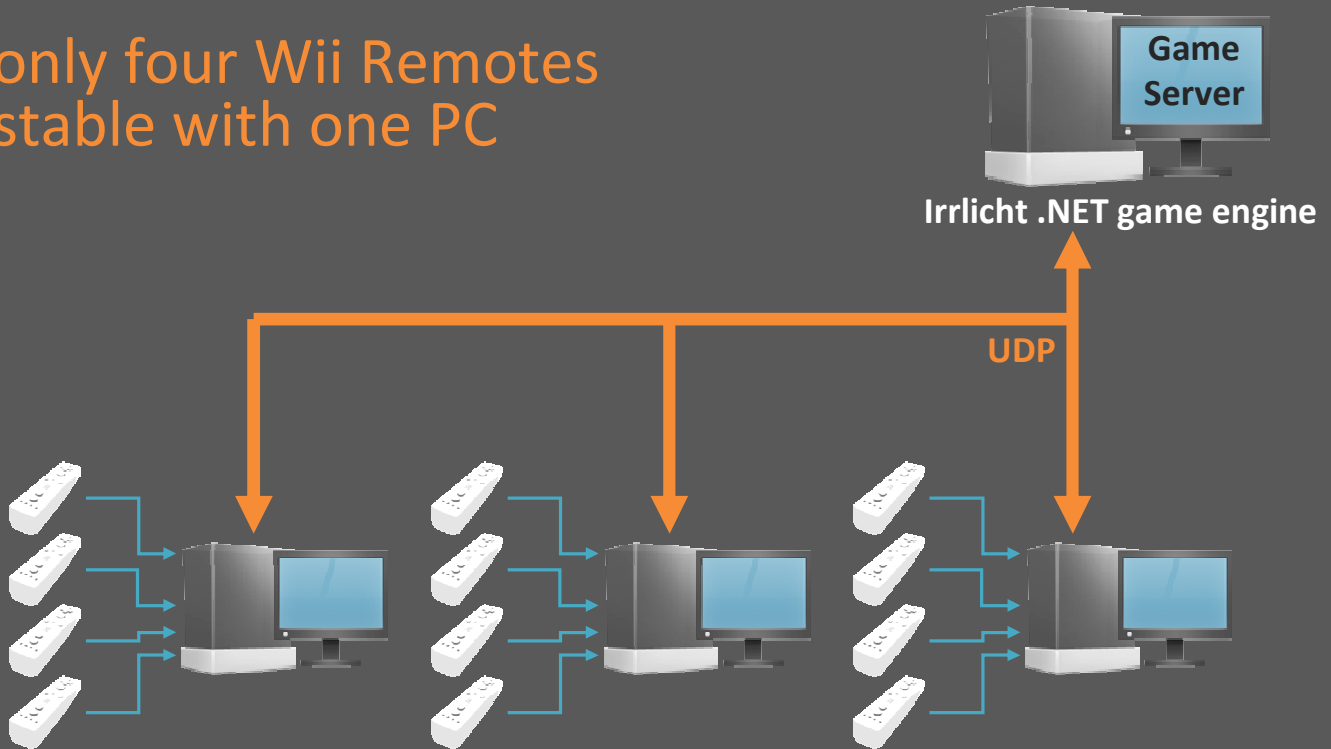
2 **Prototype**

System Architecture

client-server

Issue:

only four Wii Remotes
stable with one PC



Game Design

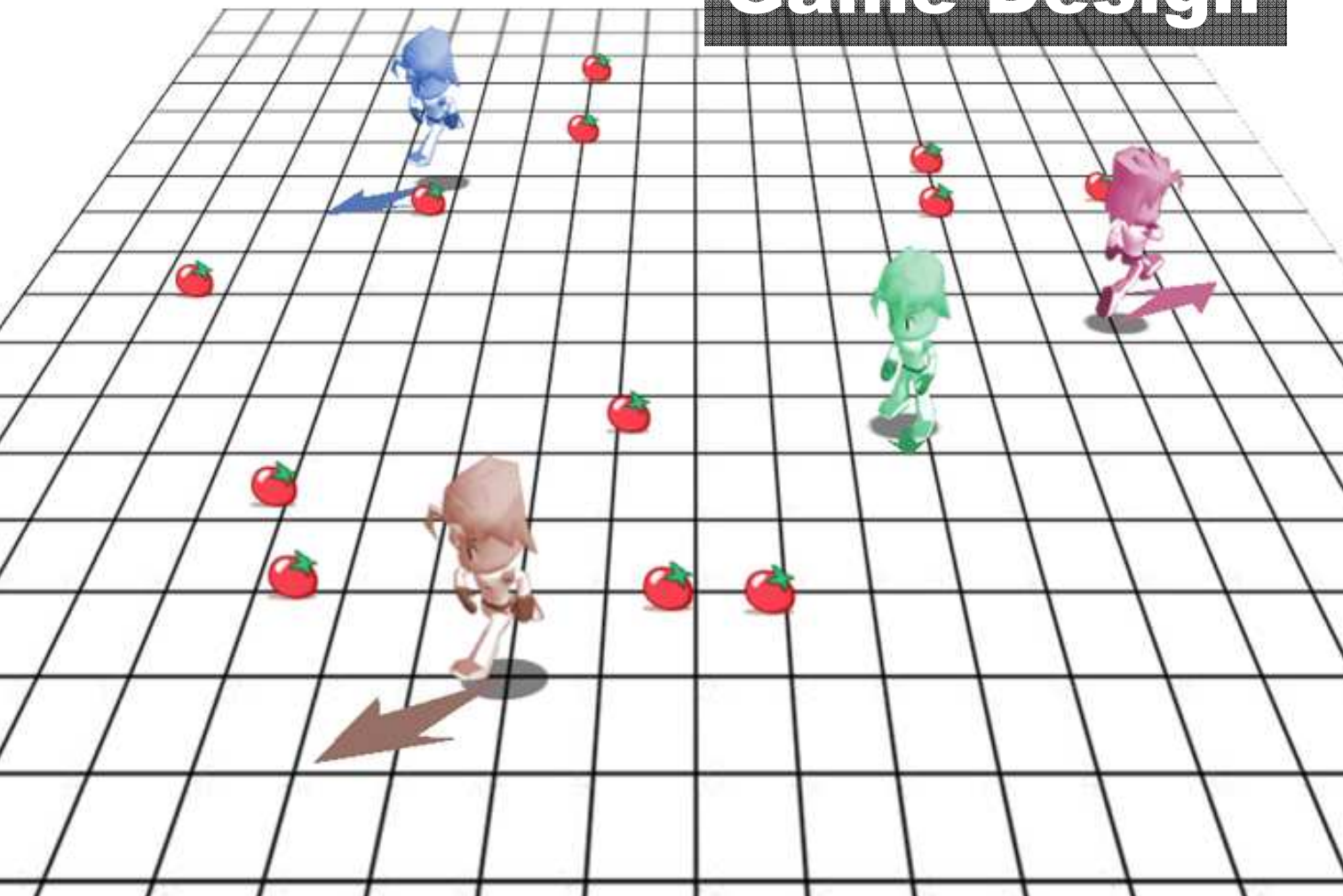
mechanics and avatars

Game with a casual “feel” to it
cartoonish characters, simple collection task

Repurposeable
neutral toward steering method



Game Design



Team Mode

cooperative control by several players

Fewer characters on the screen

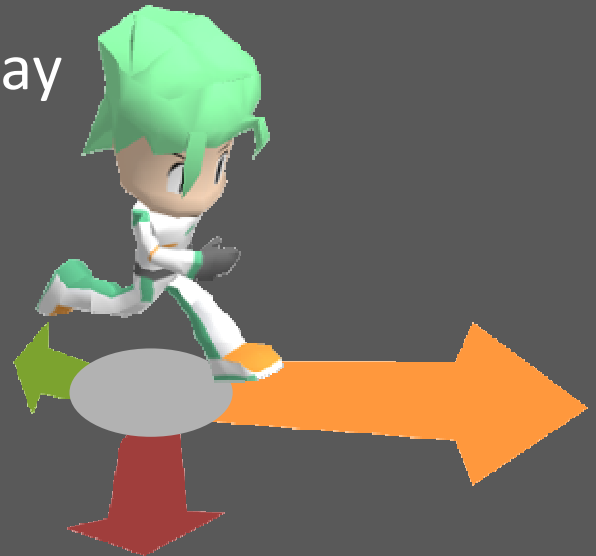
less crowded when many players take part

Team coordination as gameplay

eliciting communication

Graphical feedback

pointers/arrows



Gestures

how to handle the Wii Remote

Pointing

using the infrared sensor

Tilting

using the accelerometer

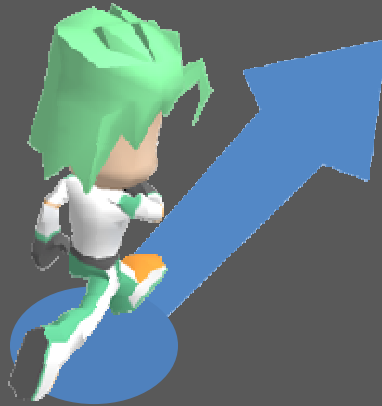
Gamepad

using the cursor buttons

Gestures

pointing

- Character chases a cursor
- Trigger button needed to enable motion

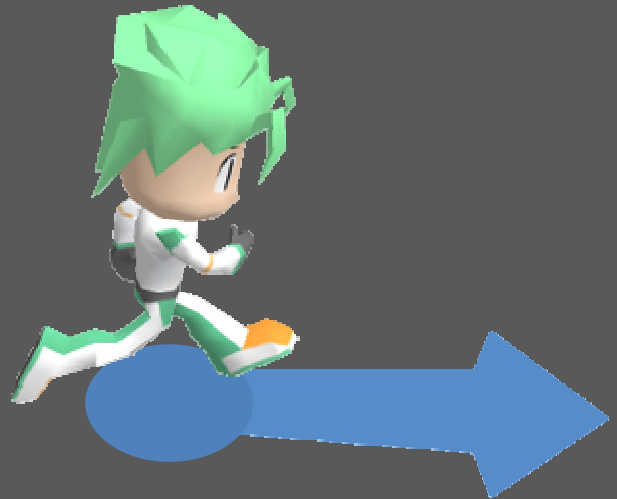


Demo

Gestures

tilting

- Two ways of holding the Wii Remote
- Angle controls speed; no button



Demo

Gestures

gamepad

- Press the cursor keys (eight directions)
- Velocity ramps up
- Similar to classic game consoles



3

Experiment



Test Setting

environment and data

Subjects

5 male, 1 female; age 22–29; Wii Remote users

System

six Wii Remotes, three laptops, 22" LCD screen

Play Test

scores, questionnaires, players' behavior

Test Runs

examined variants

	Single players	Teams of two	Teams of three
Pointing	•	•	•
Tilting	•	•	•
Gamepad	•	•	•

3 × 3 × three game rounds
of 40 seconds each

Test Results

performance and entertainment

	Single players	Teams of two	Teams of three
Pointing	↓	↓	↓
Tilting	↑	↑ ↑	↑ ↑
Gamepad	↑		

Score

Fun

Test Results

issues

Pointing is not 100% reliable

unsteady; sensor may lose tracking

Control most easy with gamepad

but players would prefer tilting

Gamepad issues

only eight (or four) directions to go;

unnatural grip

Outlook

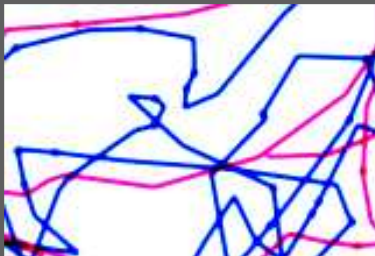
further studies

Testing with a larger audience
also concerning Bluetooth (pairing process?)

Game and interaction design
new kind of game; clean up, fuse sensor data

Statistical Evaluation of the tracks

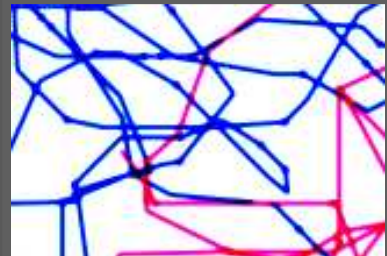
pointing



tilting



gamepad



Thank You!

abiyasa@abiamy.com

<http://www.abiamy.com/abiyasa>

joern.loviscach@hs-bremen.de

<http://j3L7h.de>