Swank-Rats documentation

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Swank-Rats

Semester Project for course "S1 - Kopplung und Integration von heterogenen Systemen".

Game Idea

Swank Rat is a rat fighter game. Two rats are trying to shoot each other with cheese. The rats are represented by robots which are controlled by two players. With a Camera over the Game-World can the software "see" where the rats are. In addition, the obstacles are detected over this camera. This obstacles are straight walls (e.g. wood slates with a red with a red mark). The Rats are able to throw pieces of cheese after the opponent. The walls serve as a limitation for the cheese-bullets.

To control the robots the live video of the world (overlaid with video of the cheese-bullets) will be displayed in a HTML UI in the browser. With buttons (and keyboard shortcuts) can the player control the real robot.

If a robot is hit (one or more) the game is over.

Architecture

TODO overview image

Hardware

- 2 x "Rat-Robot" with WLAN Dongles to communicate with the server
- 1 x Webcamera (for the detection of position and world)
- 1 x Server (Notebook or PC for image processing and game logic)
- 2 x Clients (Notebooks with modern Browsers)

Server-Software

- Server Application (Java)
  - Image processing
  - Position detection
  - Overlay webcam video with cheese-bullets
  - Stream video for client

- NodeJS Server
  - Robot control
  - Server UI (HTML)
  - User management

Client

- Browser Application
  - HTML5
  - Presentation of game stream
  - Javascript with Websockets
  - Buttons to control robot
  - Login
  - . . .

Communication

TODO