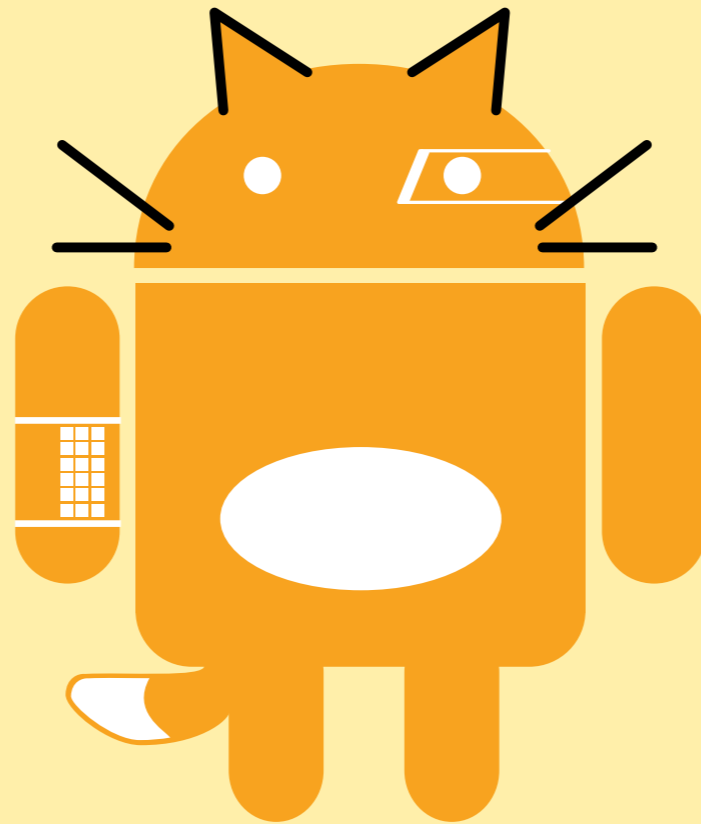
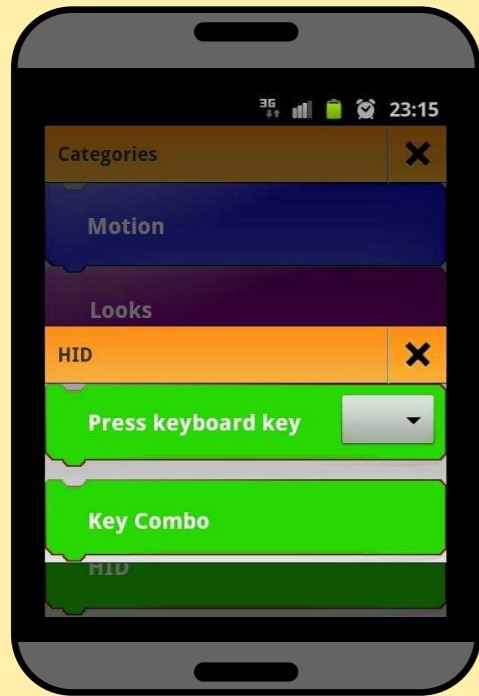


Catroid as Wireless Human Interface Device

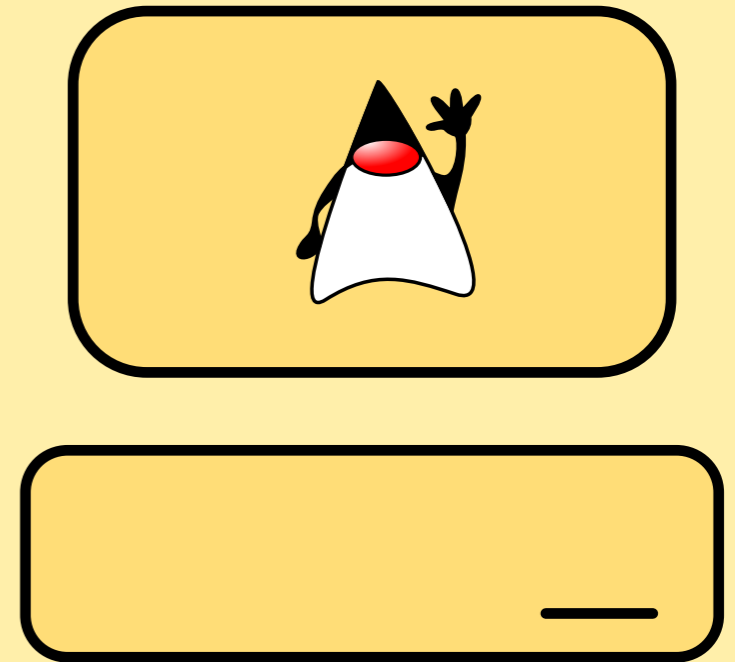
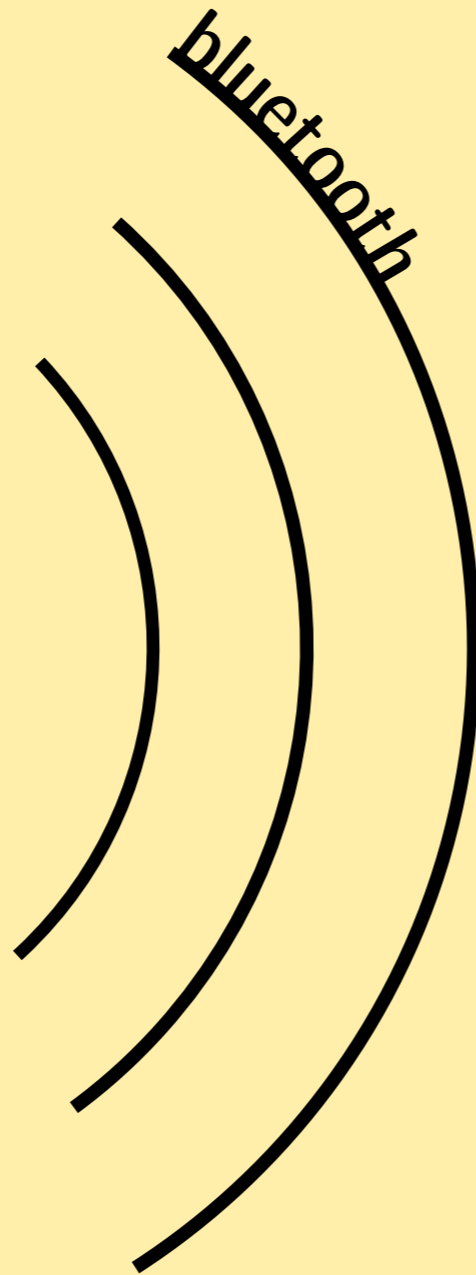


Team 36, SEWM 2012

Setup

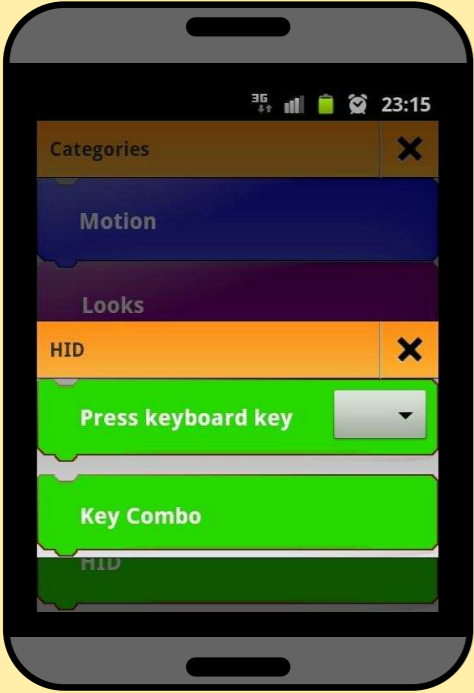


catroid

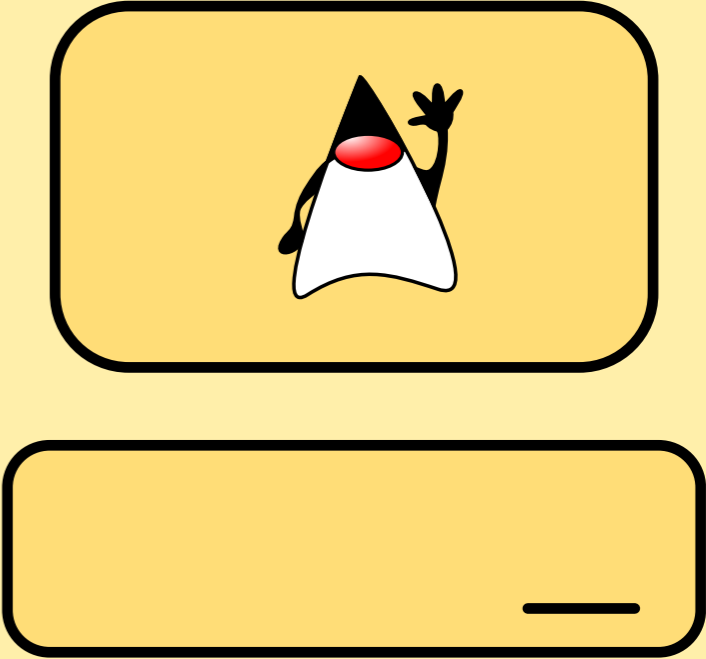


desktop

Setup



client



server

eXtreme programming

Communication

one room, one repository
one teampage, all people

Concrete experiments

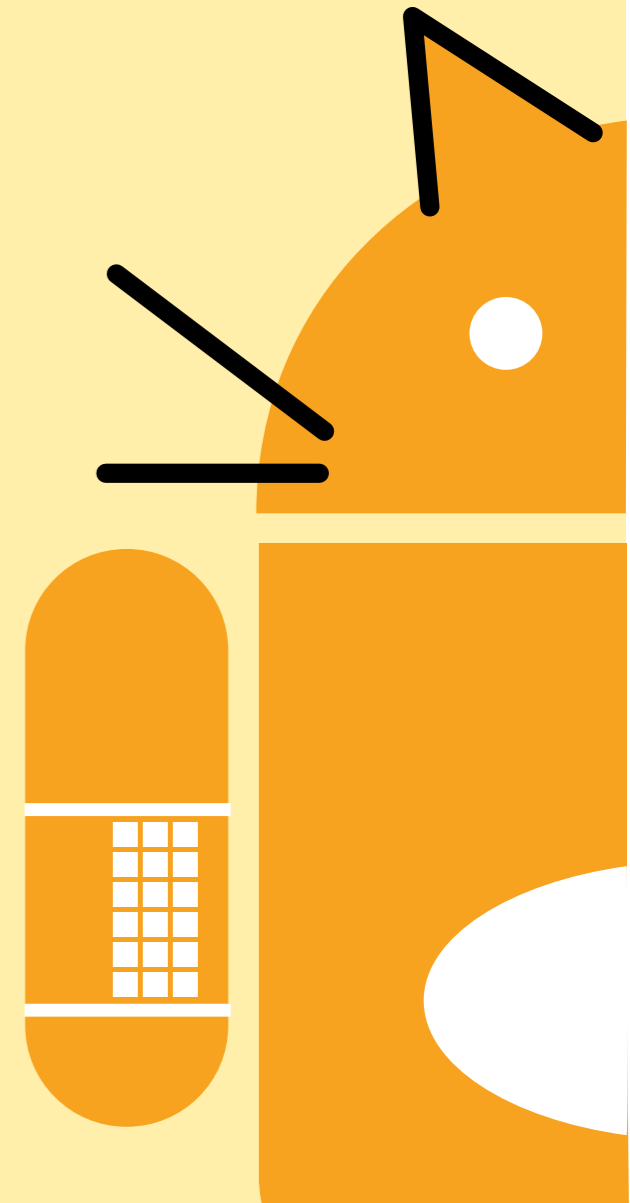
"HalloBlauzahn" prototype

Metaphor

"client" & "server", "string"

Pair programming

Pairing matrix



eXtreme programming

Stand-Up Meeting

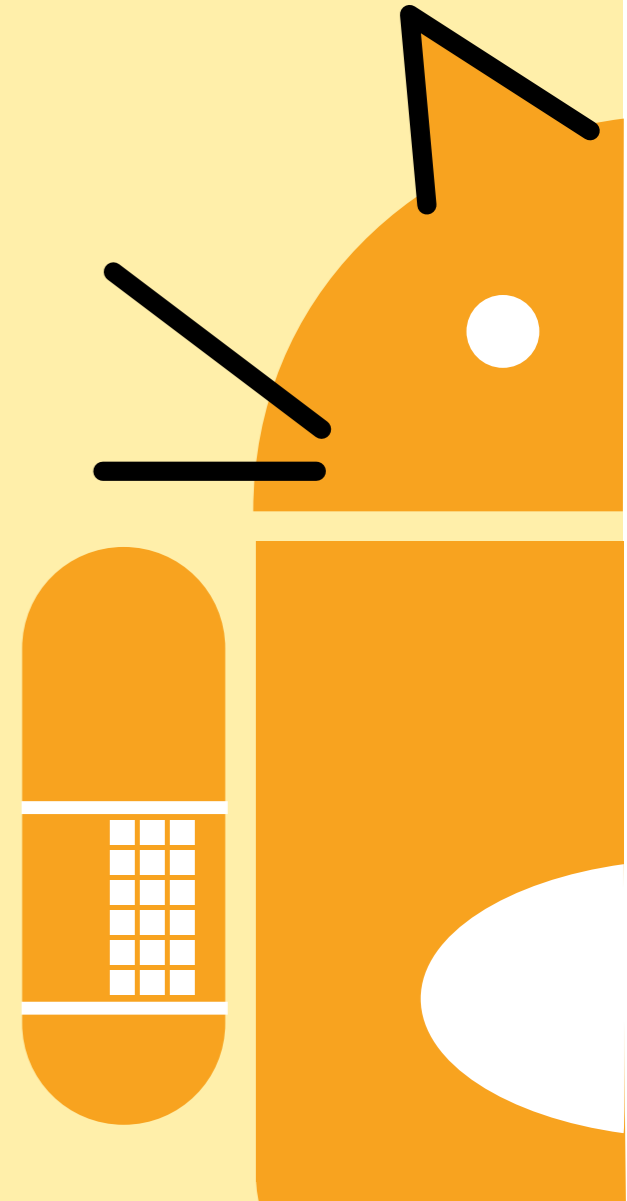
8:30 each week

Story cards are pieces of the planning game

16 major story cards

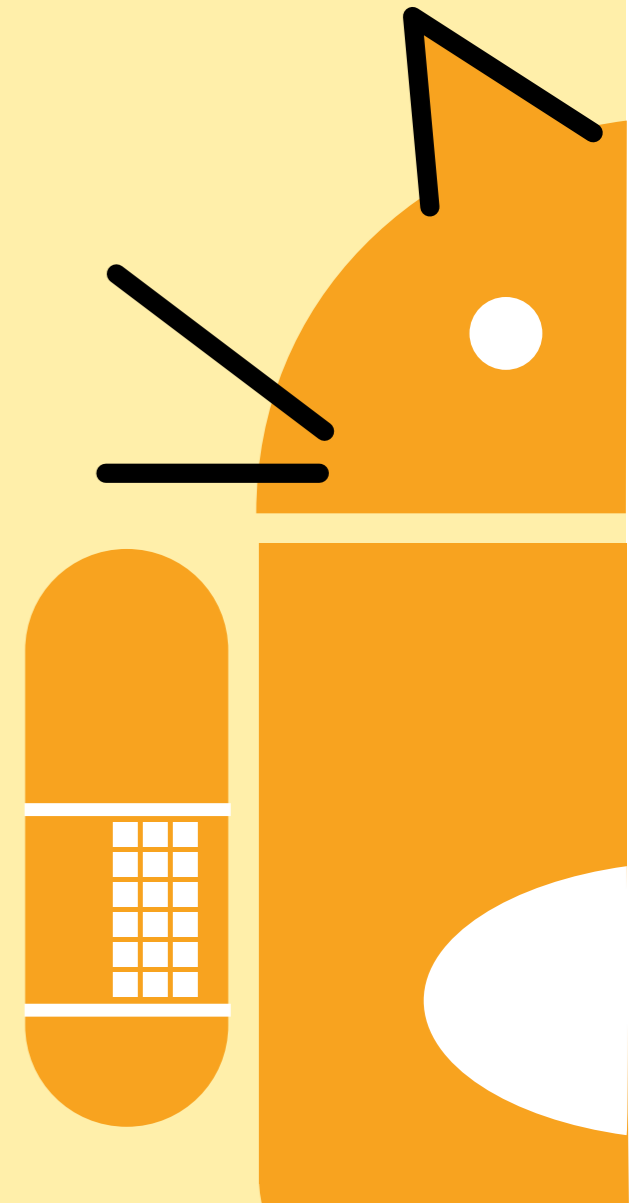
Testing

test-driven development. Tests first!



story cards

- Brick arguments validation user story
- Bricks design user story
- connect user story
- destroy Connection user story
- enable bluetooth user story
- error handling user story
- handle heartbeat user story
- integration into catroid user story
- Key Brick execution user story
- Key combo execution user story
- lookup user story
- Mapping user story
- Process Command user story
- Receive user story
- Scanning devices user story
- send user story



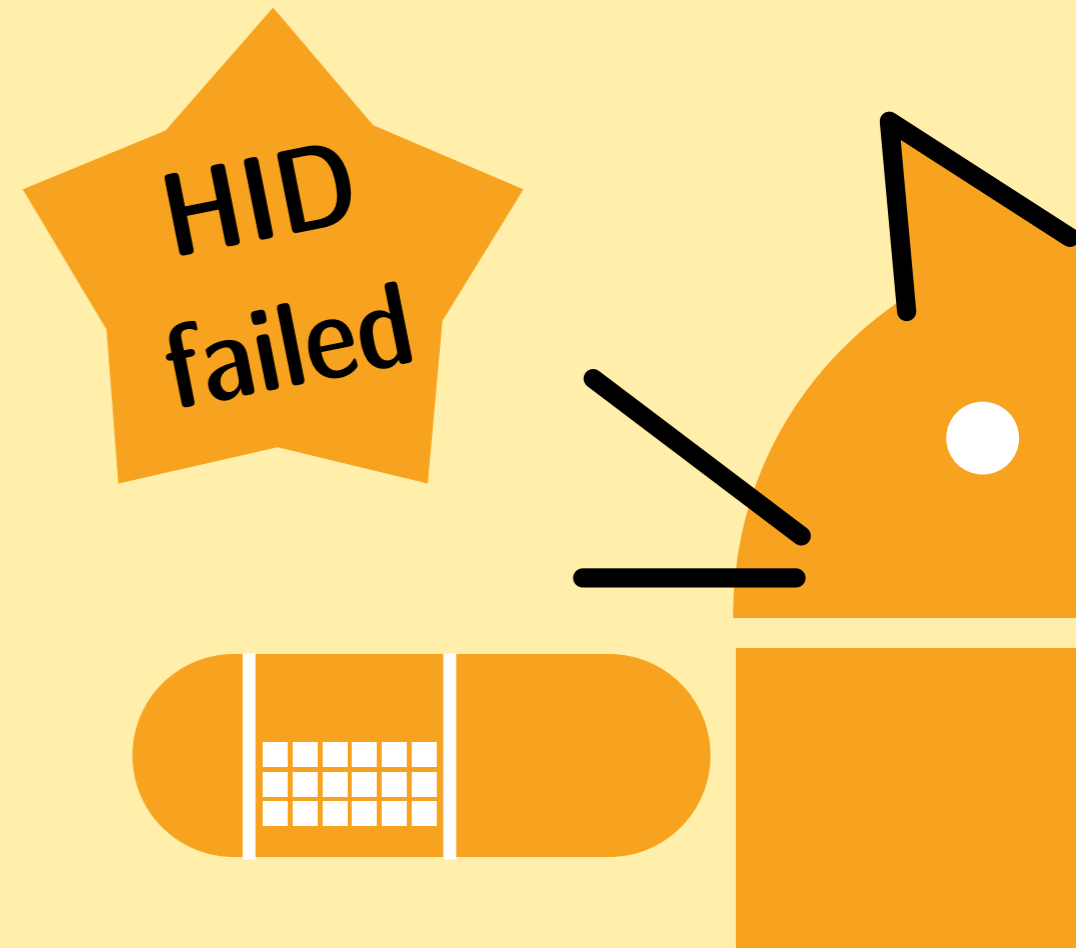
Design

Catroid framework is basis (prestige, brick hierarchy).

Learning Android development to understand activities, intents and development environment.

One directional communication only (server provides test mode).

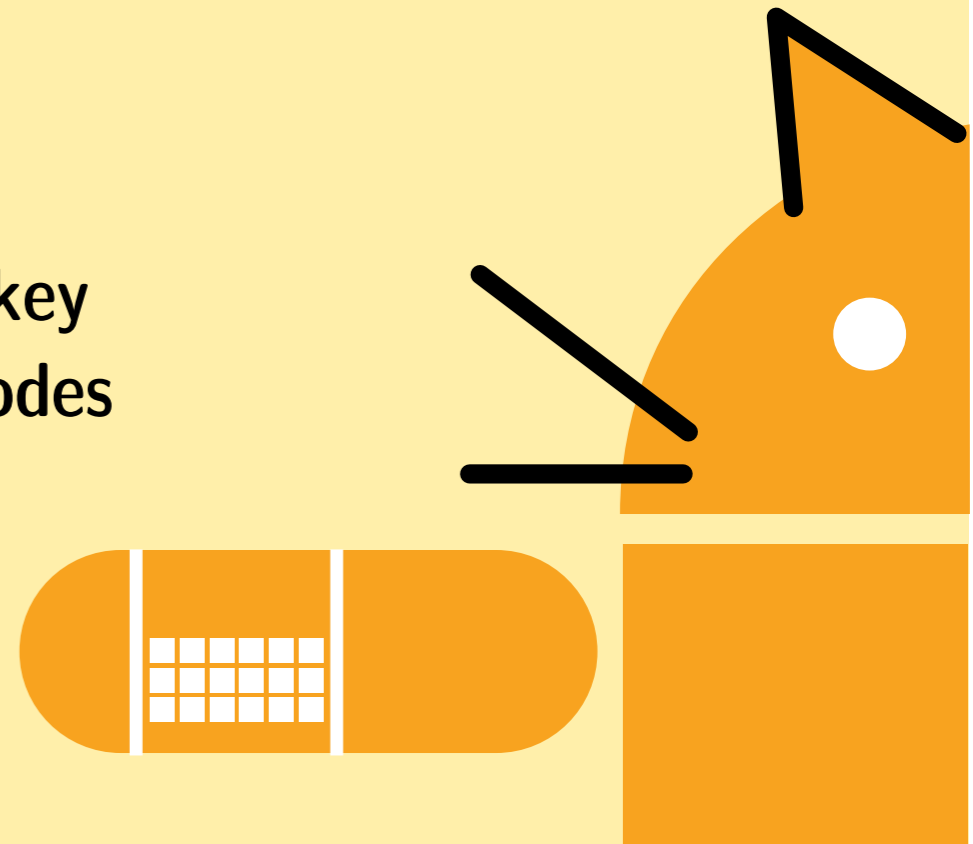
1. Extension of Brick classes for HID bricks.
2. Reuse bluetooth implementation of LegoNXT.
3. Subset implementation of HID.



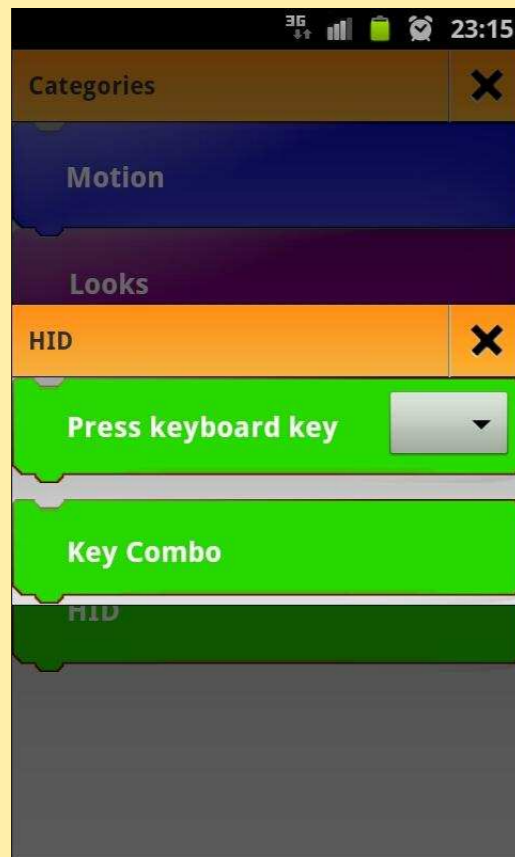
Test coverage

Create test project with HID bricks first.

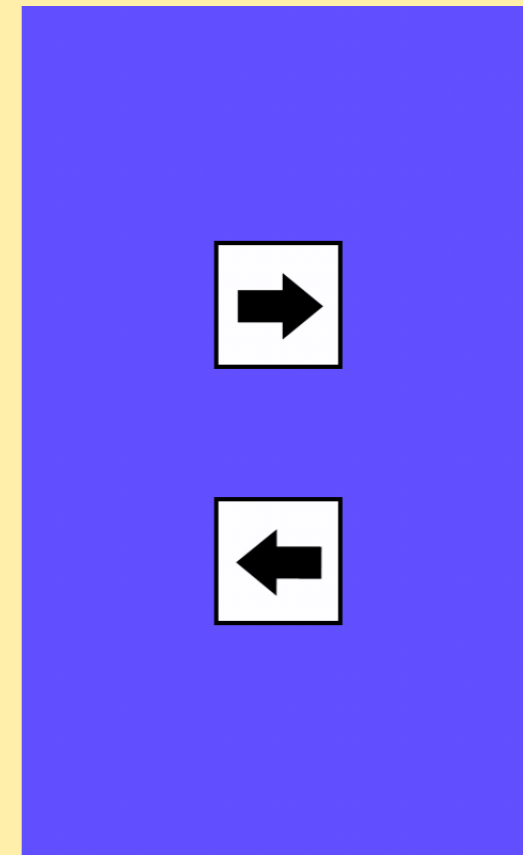
- At least one device is in list of bluetooth devices.
- Try to select all alphanumeric keys in spinner.
- Create a Key Combo Brick and try to drop an invalid brick into it.
- Send test message to build server.
- Communication Test: Server sends back received key event to client, client checks send and received codes



Demo

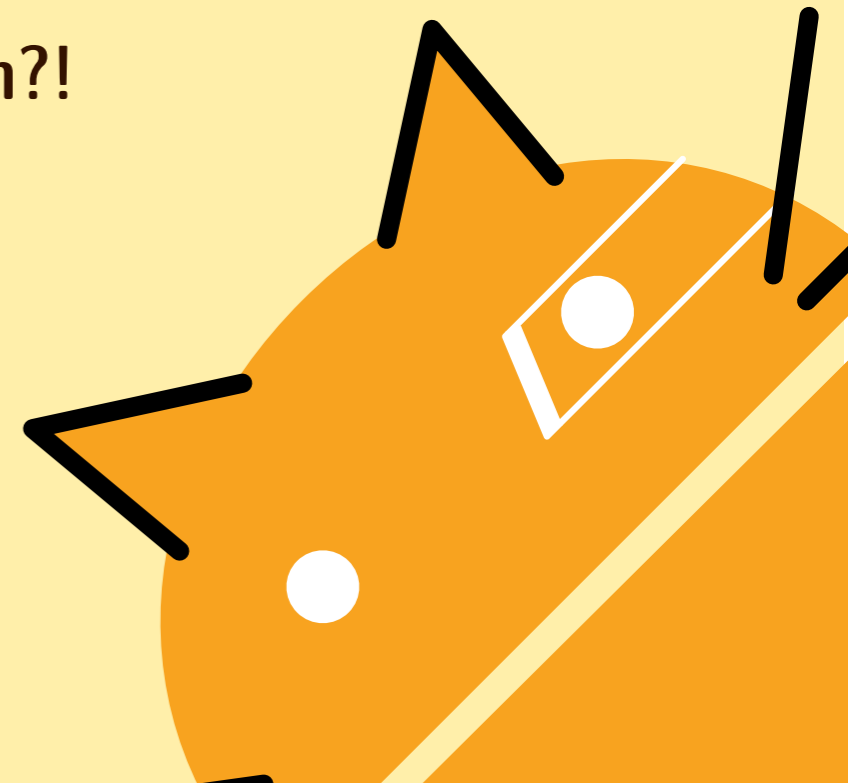


Demo



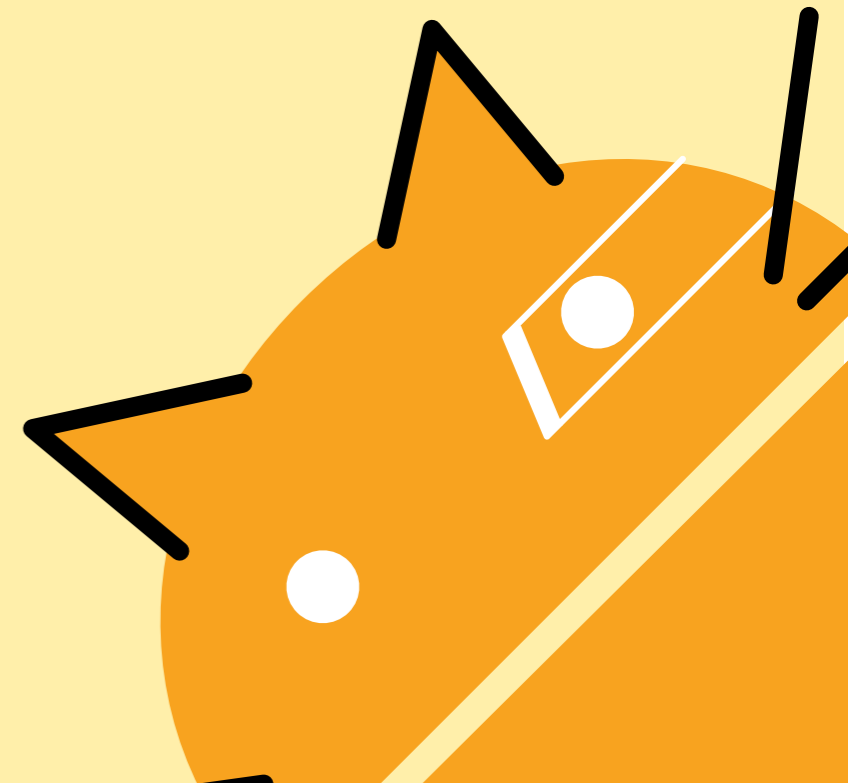
Before merging to master

- refactor RFCOMM-interface
(maybe Lego NXT should use our more abstract interface)
- define abstract brick for start and end structures
(loops, HID-combobrick)
- Probably bluecove is the wrong approach for bluetooth?!
- refactor server



Future directions

- Prefer native HID protocol
- Refactor bluetooth binding—remove glue code
- Mouse movements
- Wifi?
- Full Unicode Support
- Bidirectional communication (testing, error handling)



Thanks!

Johannes, Stefan, Andreas, Alexander, Florian, Karl, Lukas,
Philipp, David, Martin, Dominik, Philipp, Dominik



<http://www.ist.tugraz.at/software2012/bin/view/Main/Team36Teampage>