Mobile control interface for modular robots
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Outline

1. Goals and challenge
2. Case study
3. Specifications
4. Conclusion
Goal of the project: Design a graphic interface to control the Roombots.

source: http://biorob.epfl.ch/research/modular

**Figure:** Synthetic image of the Roombots.
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The interface would:

- Run on several type of platform (tabletPC, but also PC, smartphone?).

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- Run on several type of platform (tabletPC, but also PC, smartphone?).
- Be usable by people from the Biorobotics Laboratory for testing, sensing.
- Be usable by lay users during presentations and demos.

source: http://biorob.epfl.ch/research/modular

Figure: Synthetic image of the Roombots.
Target user:

![Diagram showing the number of features required given the level of the user.]

**Figure:** Number of features required given the level of the user.
Target platform:

Figure: Variety of inputs and resources specificity given the device.
What is the better way to represent the Roombots?
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- What about software-Roombots interactions?
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"Study of the usage of touchscreen and accelerometer on small devices."
Example of studied case:

Perceptive Pixel: Multitouch Wall

Figure: http://www.calvin.edu
Notion of Couple:

A *couple* is a set of degrees. Each element of the set is associated in the set with a *ratio*.
When we order an action to the *couple*, the *ratio* will determine the action that will be ordered to the associated degree.
Notion of Sequence:

A *sequence* is a set of time-dependant actions. A *sequence* contain a set of assertions (over the initial configuration/position) the Roombots has to fulfill without what the sequence can’t be run.
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Figure: The chronograph: a time manager.
Four modes for the interface:
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- Assembly mode
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Figure: Example of usage of different modes.
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Figure: Example of usage of different modes.

All this mode will be display on the top of the visualisation of the Roombots.
Suppose that a λ-user is in high-level mode, in a locomotion environment.

source: http://birg.epfl.ch/page68135.html
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Then we can suggest him some sequences that are saved and for which the assertions are respected.
What will I do now?
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- Implement a 3D perspective for the visualisation using Ogre3D library.
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- Implement a 3D perspective for the visualisation using Ogre3D library.
- Implement the different modes and write code documentation.
Thank you for your attention.

Questions?