

Context-aware Smart Object

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Glossary

IMU- Inertial measurement unit, the sensor that measures movement using accelerometer and gyroscope.

CAD-program- computer-aided design -program , is a computer program that is used for 3D modelling

JAVA- object-oriented programming language, that we used on the PC for 3D modelling and a Bluetooth connection to the SO (Smart Object)

Arduino- is a microprocessor that is commonly used for prototyping or for educational purposes.

Atmel AVR processor- a single chip microcontroller which was developed by Atmel in 1996

Motivation

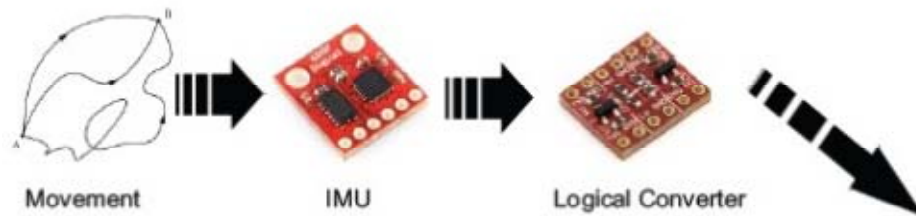
To build a wireless interface came from the fact that we all are computer users and that freedom of movement that our product offers is innovative. We want to “free” the users from the table tops and give them liberty of movement.

State of the Art

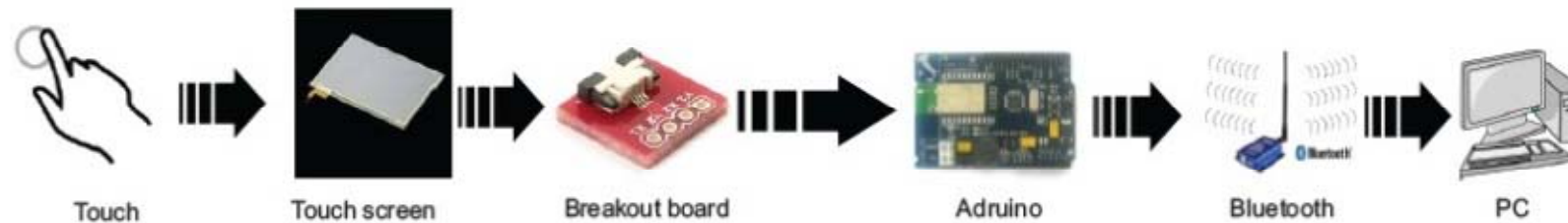
- **Microcontroller**
 - Arduino
- **Sensors**
 - IMU
 - Touch Screen
 - Microphone
- **Power supply**
 - Lithium-ion polymer battery- LiPo battery
 - Solar panels
- **Wireless data connection**
 - Bluetooth

Development

Movement detection section



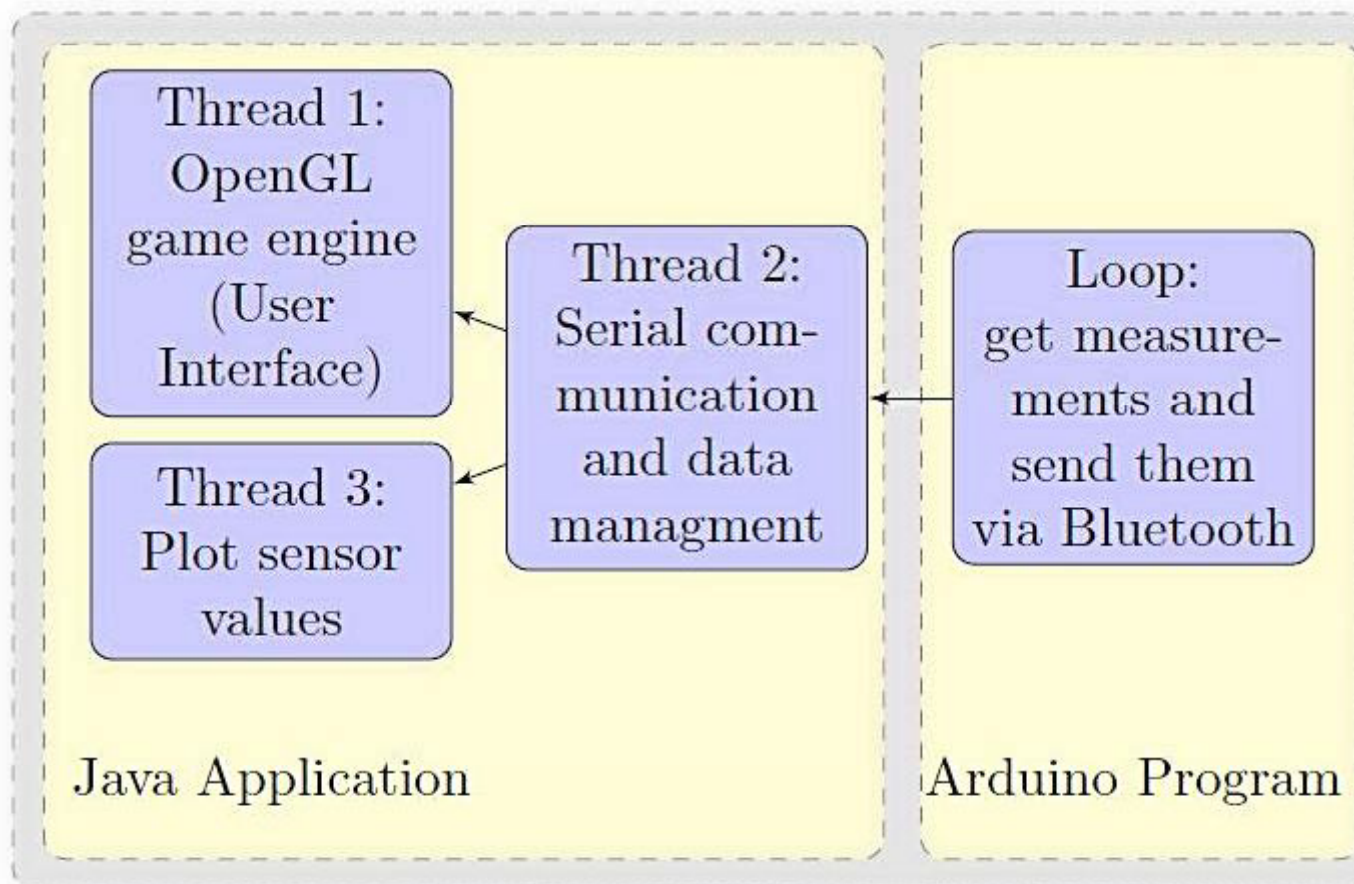
Touch detection section



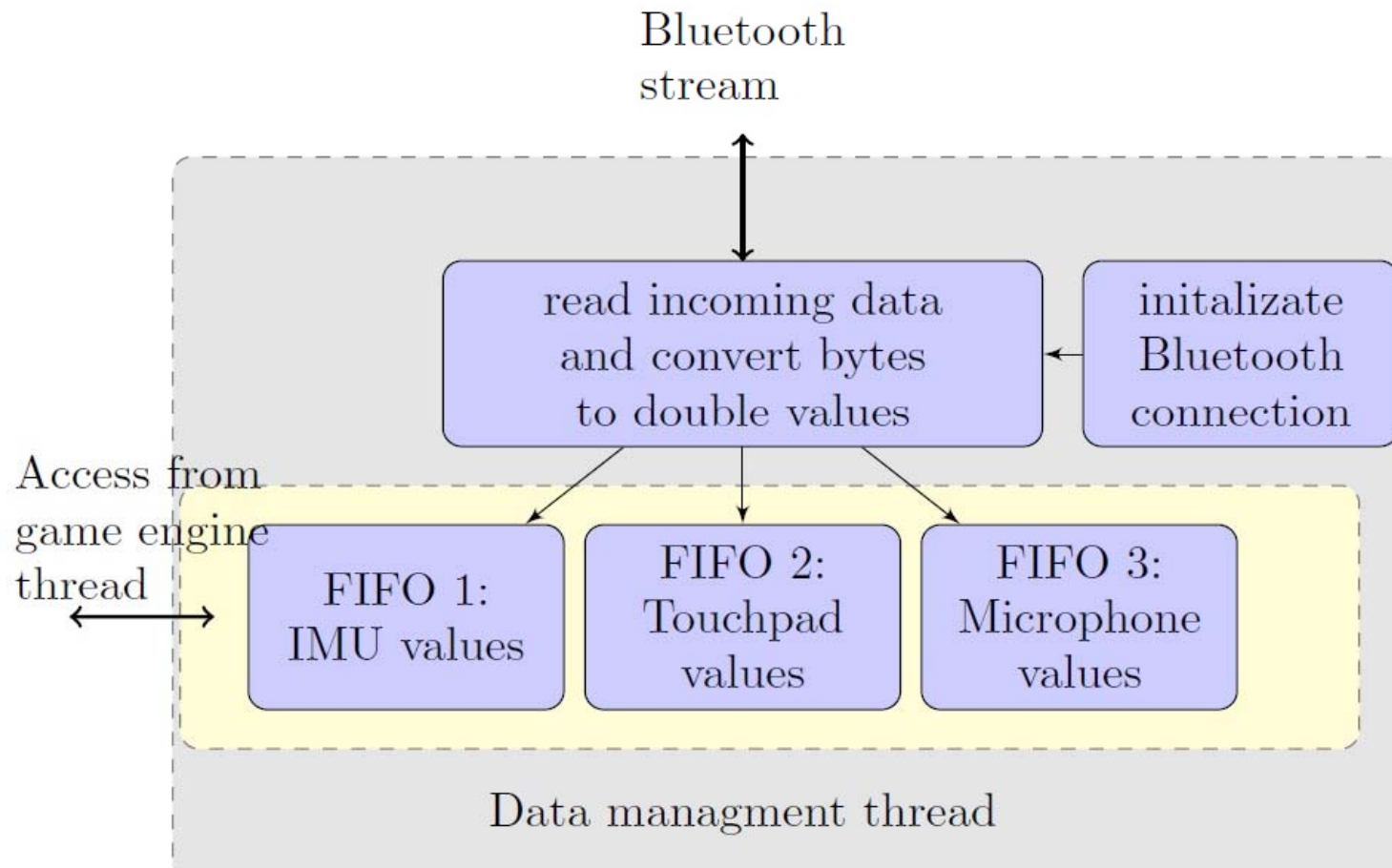
Voice detection section



Programming – Software Architecture



Programming – Data Management



Programming – Object Visualization

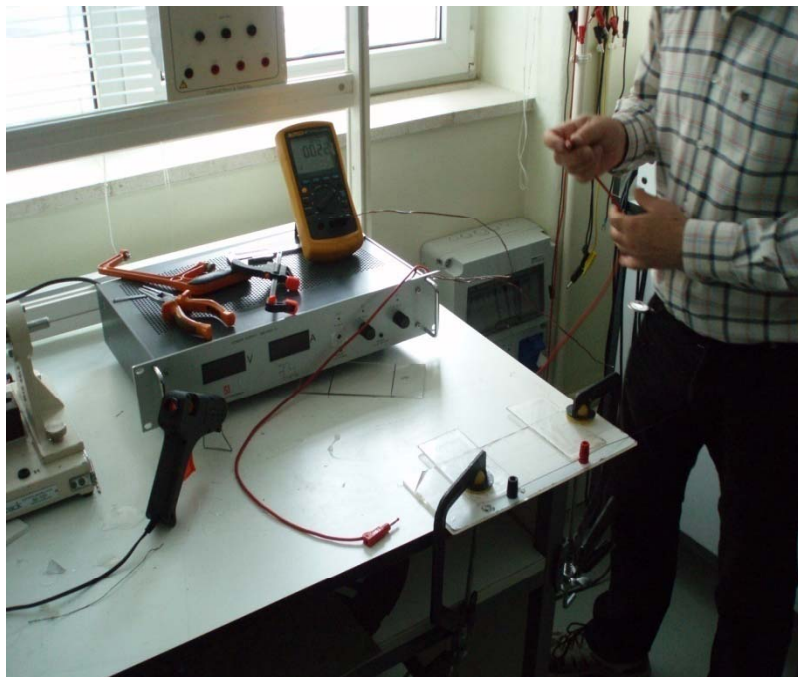
Two Modes:

1. Rotation of SO (all axis)
 2. Rotation of camera around z-axis of SO
- Switching Modes by detecting shake
 - zoom by detecting touch and changing the view port of the „player“



Mechanical construction

A voltage regulator...

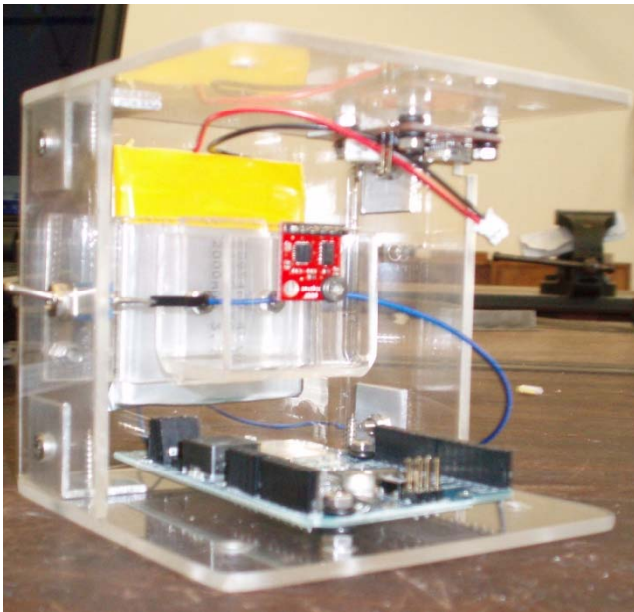


Bent acrylic

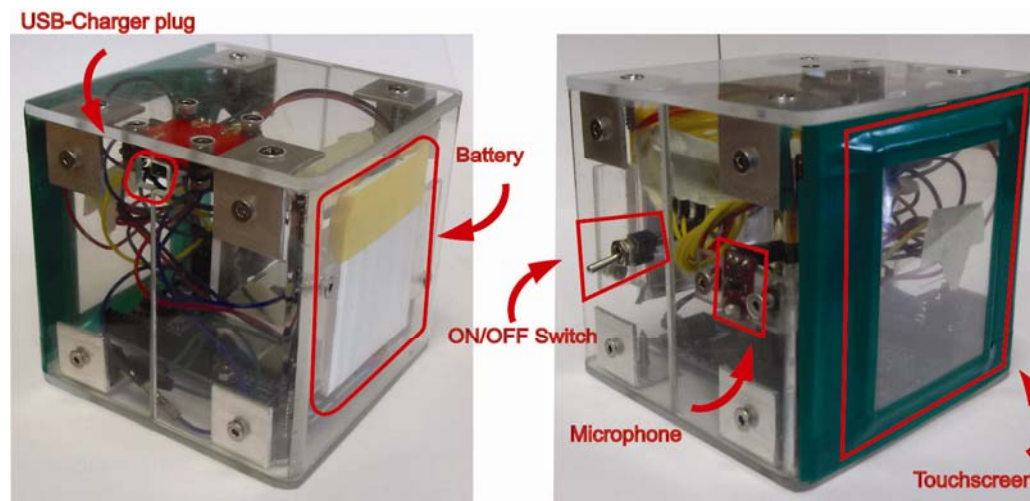


Assembly

Assembling the SO



Assembled SO

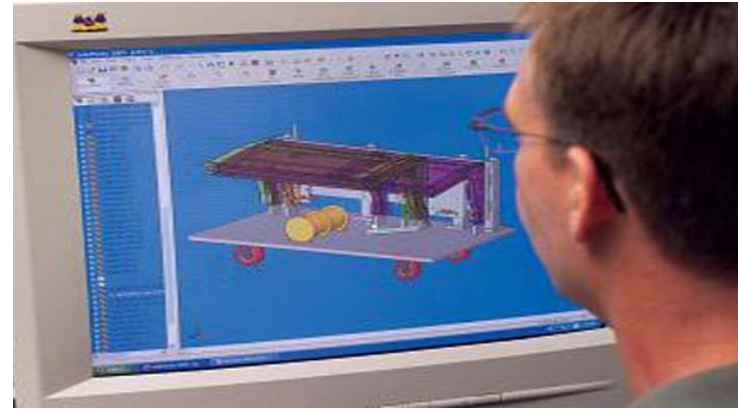


Marketing

The marketing plan is very important to sell our product successfully. It is important to concentrate on meeting the needs of our customers, therefore we included company's internal environment, suppliers, marketing intermediaries, customers, competitions, public in market's micro in macro environment analysis.

Market segmentation

- Designers, architects, engineers.
- Young people, who use computers or mobile phones to play games.



Future developments

The product has to be made more marketable:

- Outer shell material form a moldable plastic
- Change the design
- Make it smaller

Conclusions

It gave us an opportunity to combine our theoretical and practical knowledge.

We had many ideas when we began working on the Smart Object. Starting from defining the functions and ending with the material selection.

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Do you have any questions??

