

Final Degree Project

Remote robotic experiment integration in a game platform to promote STEM in young people

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Introduction

- First game using remote laboratories as a platform
 - Christian Gütl (Managing Editor of J.UCS)
- Trivial type game
- Psychology experiment integration
- Blockly programming interface
- Under FECYT Ciencia Remota project



Motivation

- Serious games as an introduction to STEM
- Challenge:
 - Multidisciplinary project: Psychology, education, software, hardware...
 - New technologies and tools: Python, Arduino, Web development, Networks

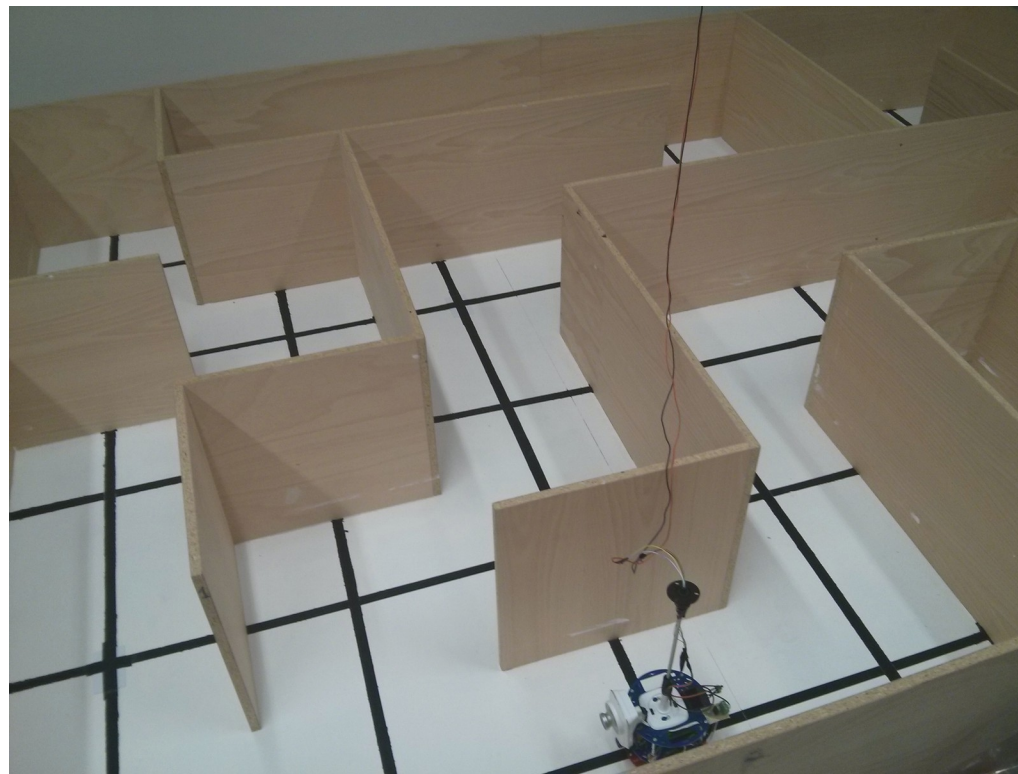
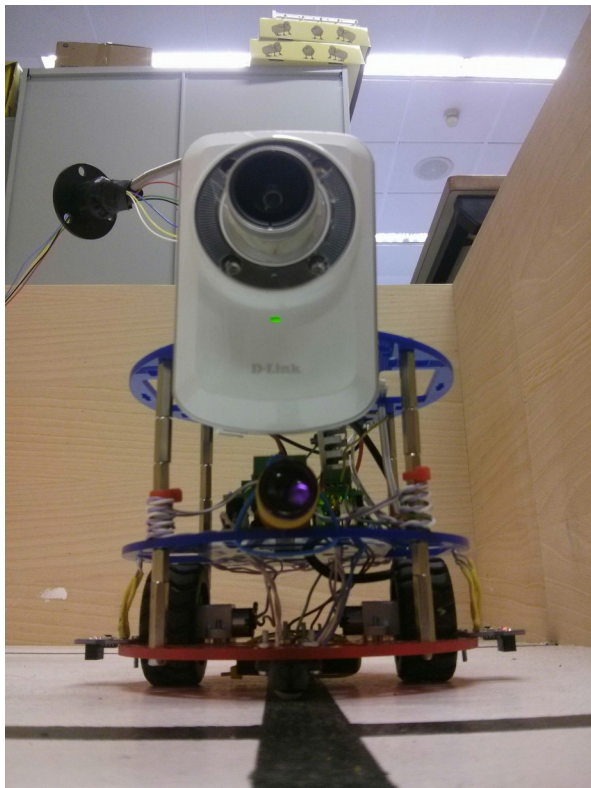


Objectives

- Integrate complex systems in an evolving architecture
- Demonstrate the usefulness of the platform
- Test the platform with as many real users as possible



Development: hardware



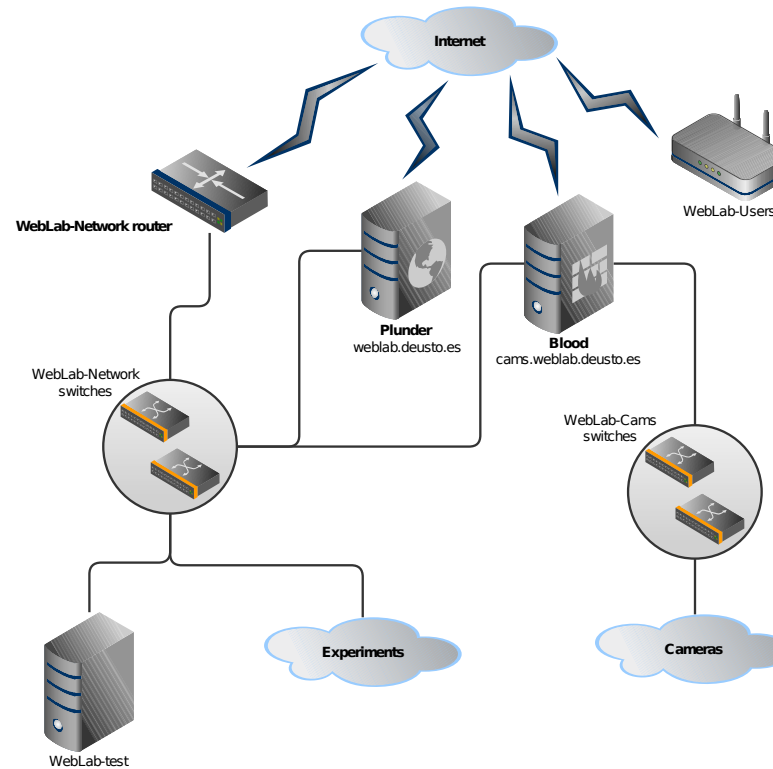
Development: software

- Using WebLab-Deusto API
- Complete integration in WebLab-Deusto
- Modular
- Expandable
- Configurable
- Reliable

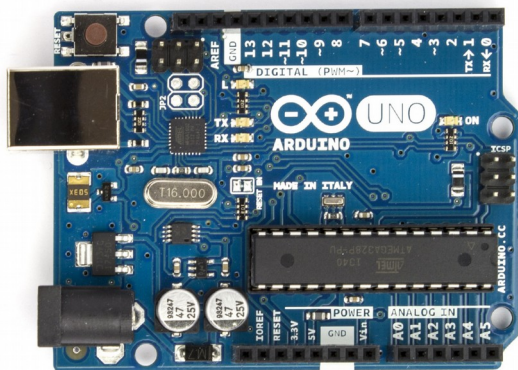


Development: network

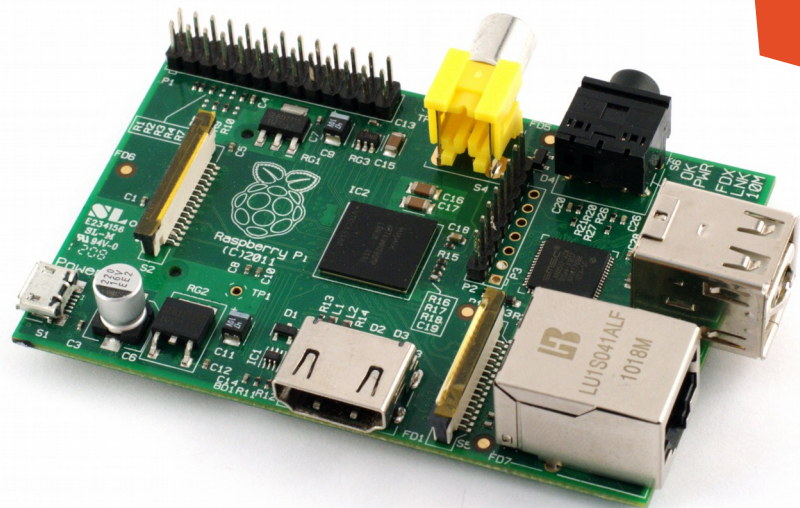
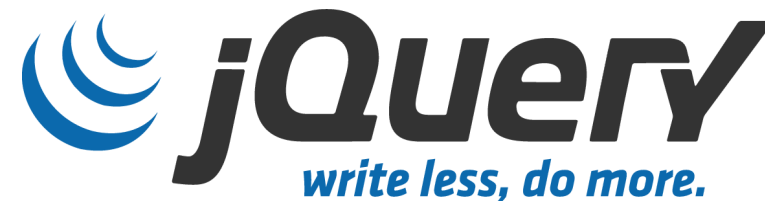
- Complex network
- Experiment in layers
- REST API
- Bluetooth connection



Technology



HTML



git

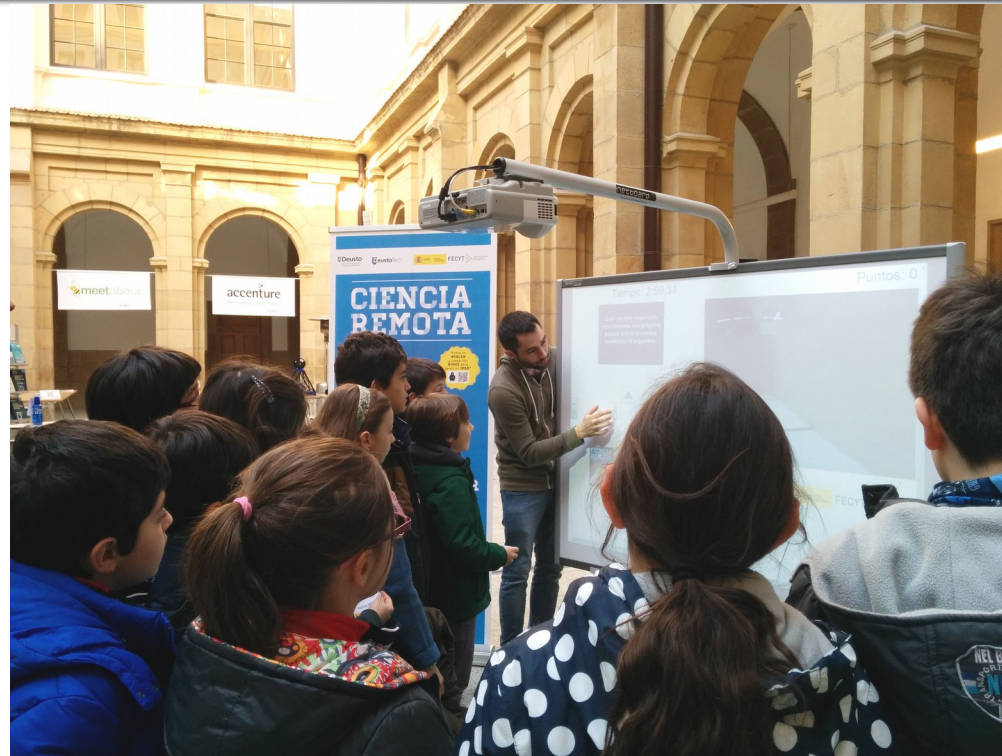


python™



Usage statistics

- ForoTech demonstration
- 8 days
- 64 users
- 665 uses
 - (164 in one afternoon)
- 40 hours, 19 minutes



Future lines of work

- Internationalization
- Computer vision
- Augmented reality
- More game modes:
 - Extend current ones
 - Enormous potential: Imagine



Conclusions

- **All objectives fulfilled**
- Complex software deployed in production and available worldwide
- First game using remote laboratories
- Learned new technologies
- Adapted to interdisciplinary work environments



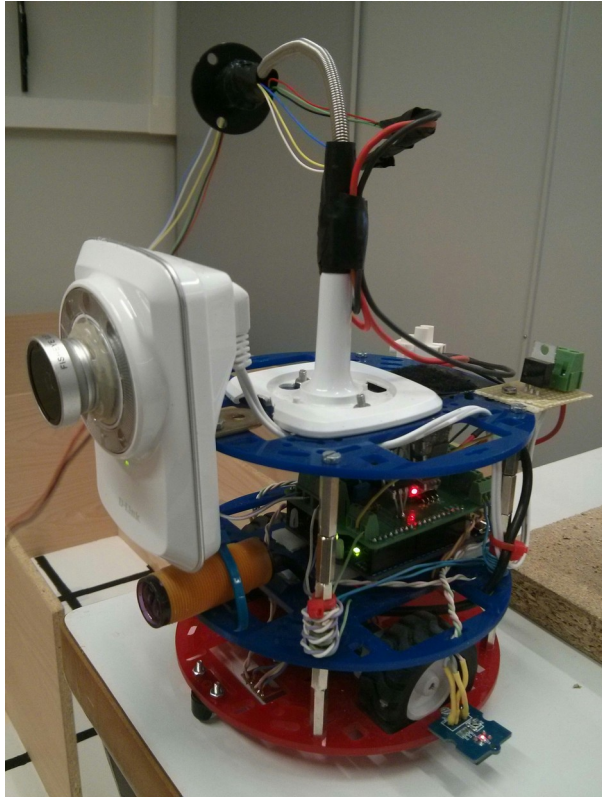
Now, the demonstration



weblabdeusto



Any questions?



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