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computer-human interaction
in learning and instruction

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Center for Learning Sciences

Spring Semester 2021   Research Project: Cellulo

Cellulo Bluetooth Connection in Unity

José Pedro Costa Coelho
Supervisor: Hala Khodr

MOTIVATION

The goal of my semester project is to implement the Bluetooth connection to Cellulo robots into Unity and to have a solution that would work under multiple platforms. In the end, one should be able to scan for nearby robots and connect to them in his Unity project.
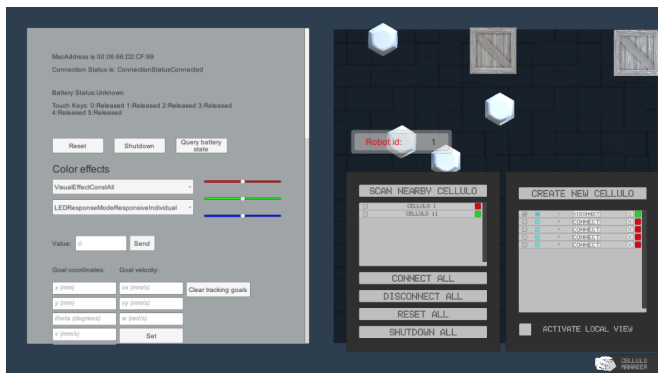
METHODS

To achieve this goal, I used a Qt library that already has two classes CelluloBluetooth and CelluloBluetoothScanner that manage respectively a Cellulo robot and a scanner for Cellulos. What I did is create a wrapper of each of these classes and use them to create functions that I export to an external dynamic library.

I added this library to the Unity project Cellulo Control Panel. On this project, I created a script Cellulo.cs that imports the cellulo functions from this library and a script Scanner.cs that imports the scanner functions. I then added to the scene a user interface that allows us to easily scan for robots, connect to them, send instructions and view their movements and status.

RESULTS

I end up with a library that works great on Windows and Linux systems but has problems connecting to robots on macOS. This library can be reused on many projects which are not necessarily only Unity projects that need to scan and connect to Cellulos.

The Cellulo Control Panel provides an easy way to control and manage many Cellulo robots. Its Cellulo.cs and Scanner.cs scripts can be reused in other Unity projects that also use the library.

If you wish to use this library on Windows, be aware that you have to first pair the robots manually beforehand from the Windows Bluetooth stack in order for them to be found by the scanner.

Repository for the library: https://c4science.ch/source/cellulo-unity/
Repository for the Cellulo Control Panel: https://c4science.ch/diffusion/11222/
Project report : https://www.overleaf.com/read/tscbtgntycph