



PIXELS FORGE

PROGETTO DI:

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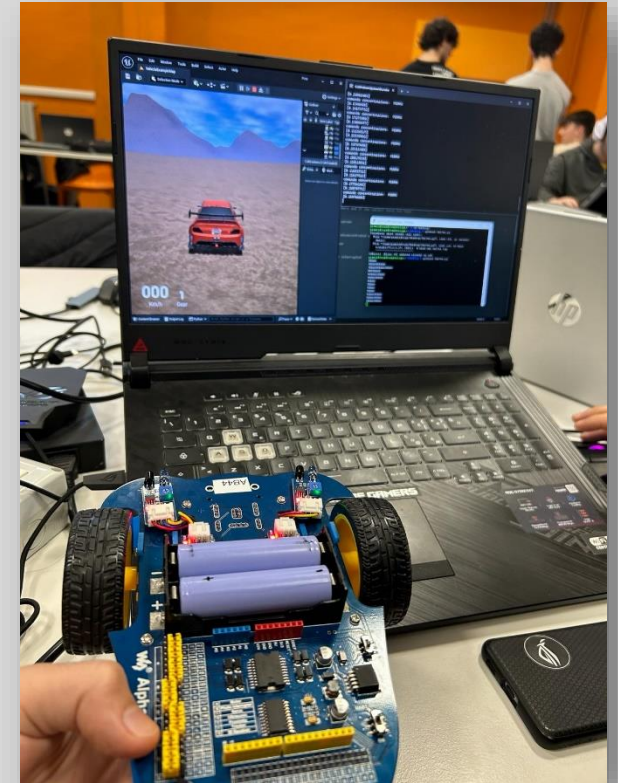


PROJECT EXPLANATION

We created a game for fun whose aim is to follow some route while driving a car and it was implemented both virtually and physically.

Our project is based on the use of the muse2 sensor which is used to detect brain waves and head movement.

Concerning the physical part, we pilot the alphabot through the data detected by muse2 and at the same time it is possible to have a view on the route and to follow the machine implemented with Unreal Engine on the computer screen.

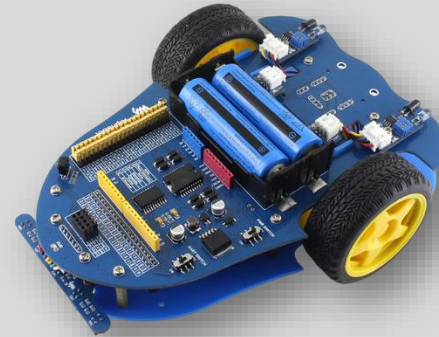


TECHNOLOGIES USED



MUSE2

Using the detected brain waves of concentration and based on the movement of the head, it detects the command to send to the Alphabot for movement.



ALPHABOT

The alphabot is a robotic development platform with a Raspberry Pi inside. It allows the user to visualize the movements of the machine in the room thanks to the signals it receives from the Muse2.



RASPBERRY PI 400

Used to install the operating system on the alphabot's Raspberry Pi

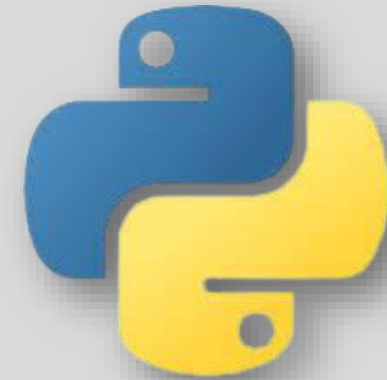


TECHNOLOGIES USED



UNREAL ENGINE

Developed by Epic Games, it is a graphics engine and development environment used for creating video games, virtual simulations, and interactive content, known for its wide adoption in the gaming industry and beyond.



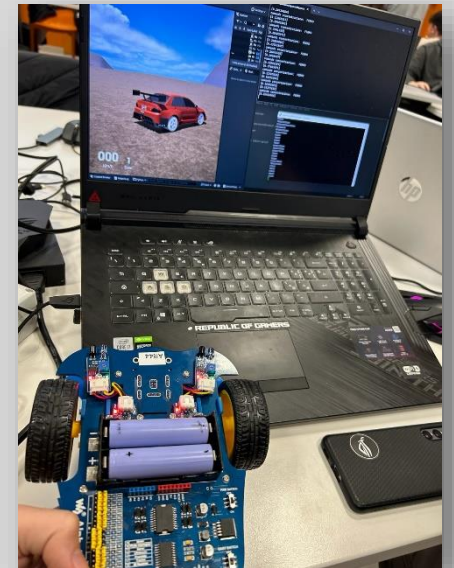
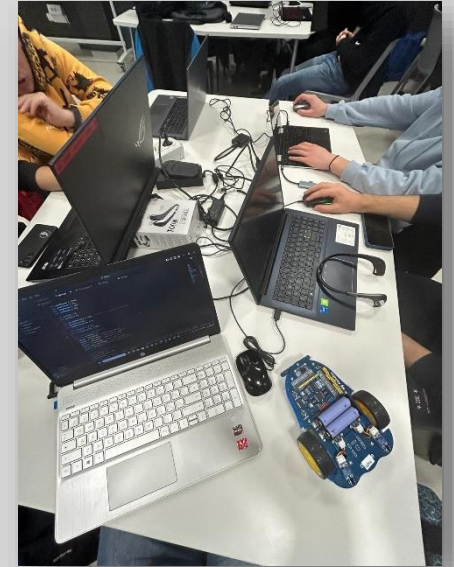
PYTHON

It is a versatile and easy-to-learn programming language widely used for software development and automation.



MAIN STEPS

1. Muse2 configuration by writing code in Python
2. Install the Raspberry Pi operating system on your computer and "flash" a microSD card which you will need to insert into the ap habot to be able to connect it to the wi-fi network so you can send it the data detected by the Muse2. We installed the operating system this way to make the steps easier thanks to the graphical interface but it is also possible to do it via the command line
3. Create Client-Server communication between the computer running the program and the ap habot
4. Graphic creation using Unreal-Engine 5 of the route on PC
5. Creation and implementation of the Python code to allow the creation of the virtual game logic.





SITE AND REPOSITORY GITHUB

Repository git hub: <https://github.com/PixelsForge>

Site: <https://mikypelle.github.io/>

