Development and build of a rover car With Internet and GPS connection

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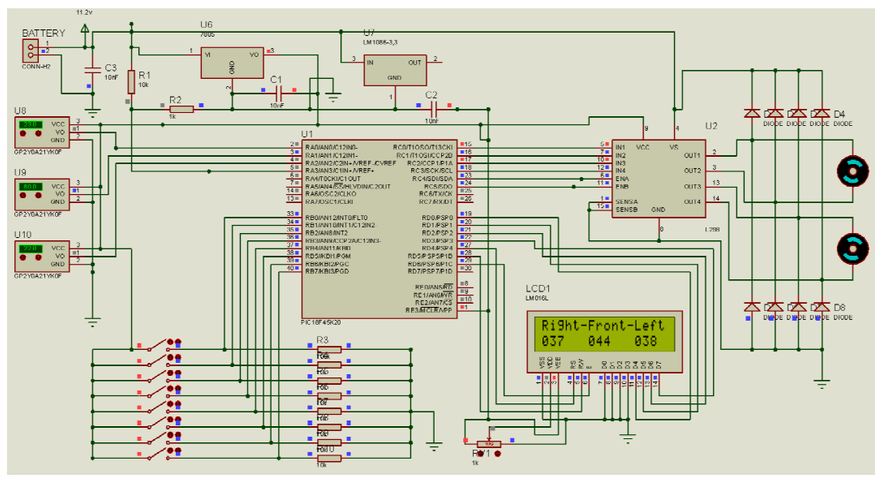
Project info

The aim of this project was to develop a **rover** connected to the internet (**Internet of things**) through a mobile internet connection. The entire project (code, hardware, design, etc.) is to be made available as an open source project for others to learn from.

Using the internet and a **remote server,** commands are sent to the rover from any device from anywhere in the world. The commands that can be sent includes **orders to move the vehicle** in different directions (i.e. to have full control) and also an order to activate an **autonomous** mode, which moves the vehicle while avoiding obstacles.

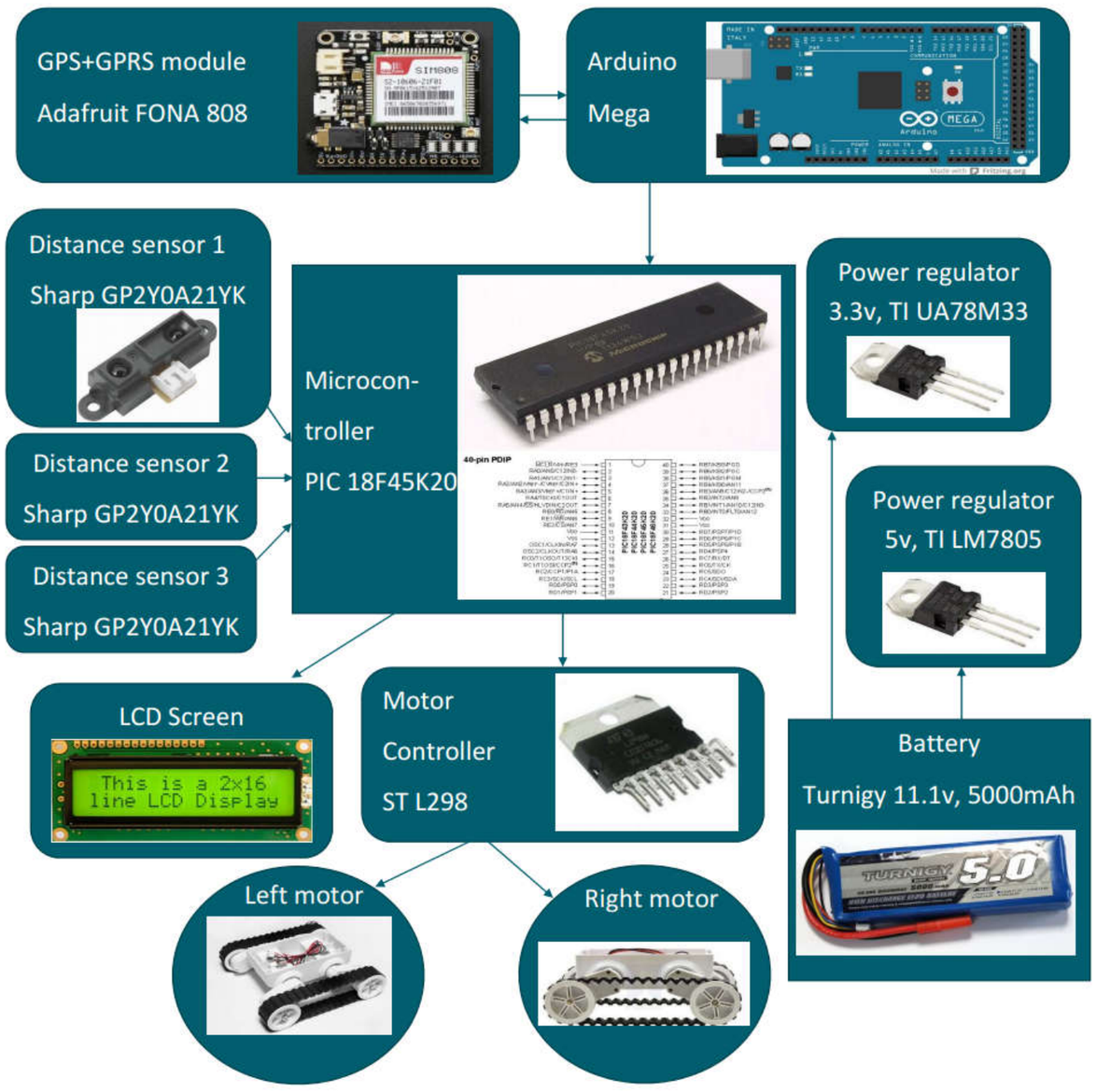
The system is checking continuously if there is an available **GPS** signal, and if it finds a signal, sends the coordinates (each minute) to a remote server, and from a webpage we can see this coordinates **drawn in a map**.



Method

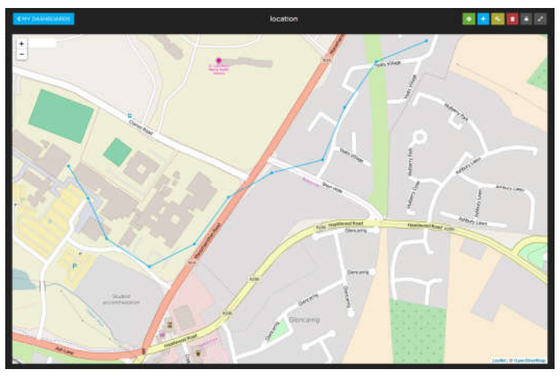
In the **diagram** below, one can observe the different components and the connections. Note that the power wires have not been drawn to keep the diagram easy to read.

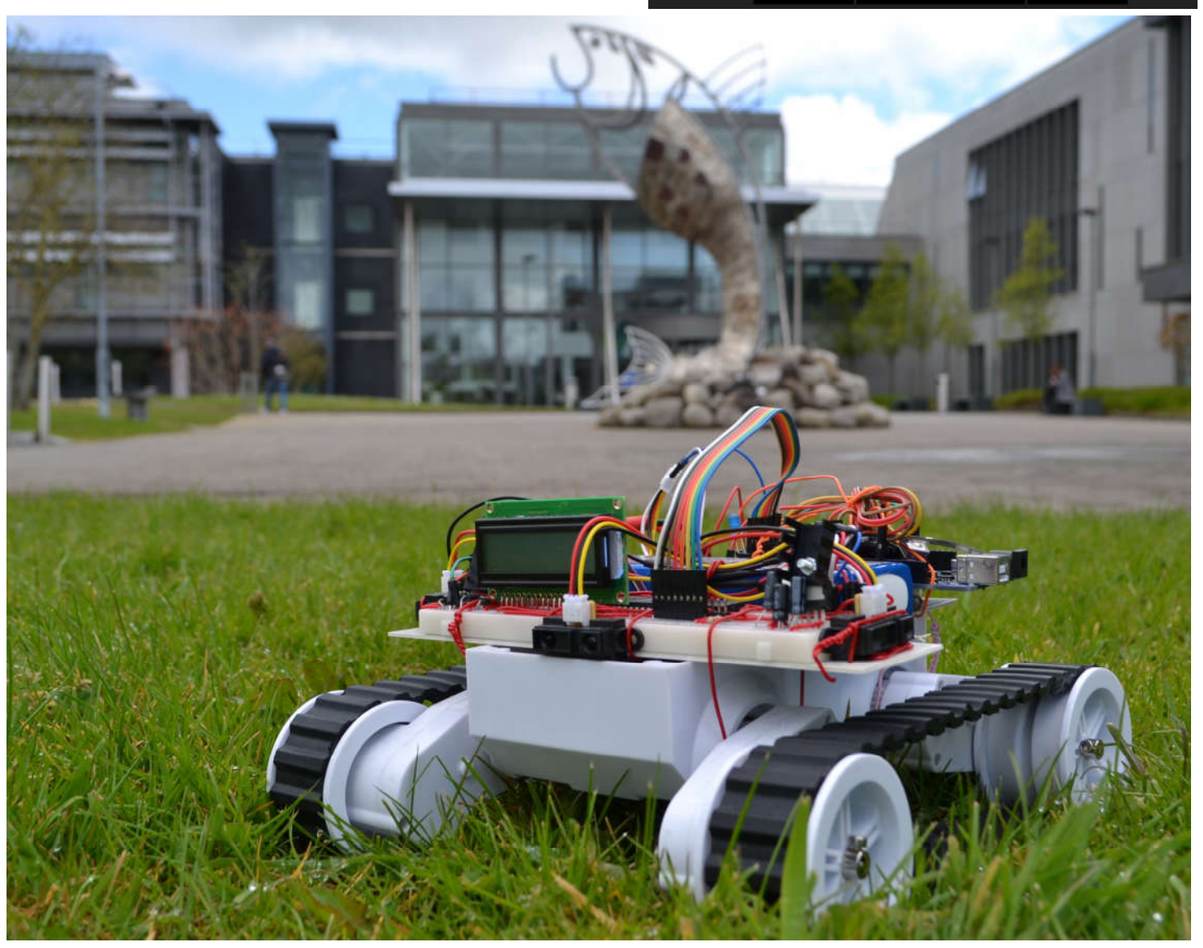
The **PIC** receives instructions from the **Arduino**, which receives data from the **GPRS and GPS module**. The PIC also receives data from the **distance sensors** and sends orders to the **motor controller** and to the **LCD.**



Skills Gained

- Design and development of circuits
- Development of software for the PIC
- Development Software for the Arduino
- Understanding & Programming the interactions between the server & Arduino
- Understanding & Programming the interaction between the Arduino & the PIC
- Develop User Interface for the webpage
- Build the components in the chassis
- Manual and autonomous modes
- Tracking by GPS in map





Extra information

You can watch a video, download the **code**, the full report, and all the documentation related with this project in the **GitHub** repository:

www.github.com/jorgecrce/IOT-Rover

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Conclusions

During the execution of this project, many areas studied as part of my degree in **electronic engineering** have been utilized, including mounting **analog** and **digital** electronic components and developing all the program for the **PIC** microcontroller and for the **Arduino**. This project has also covered areas outside the scope of my degree, for example **informatics** and **automation** and **mechatronics** engineering.