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

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Project info

The topic of this project has been to develop a **rover** connected to the internet (**Internet of things**) through a mobile internet connection.

Using this connection and a **remote server** we are able to send orders to the rover from any device with a web browser from anywhere in the world. The commands that can be send includes **orders to move the vehicle** in different directions to have full control and also an order to activate an **autonomous** mode, which moves the vehicle avoiding obstacles.

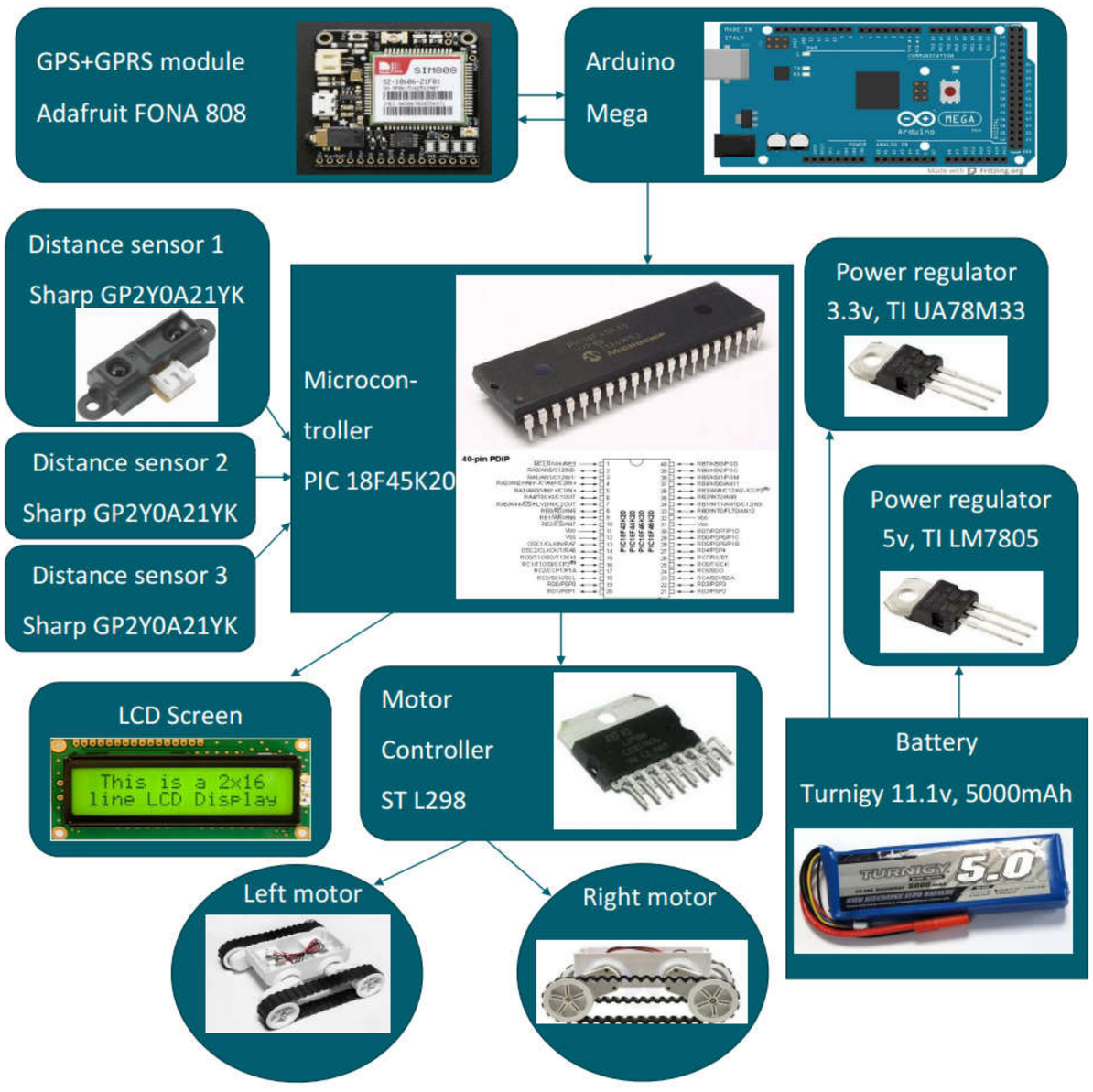
In order to avoid the obstacles, the rover has three **distance sensors** which informs the microcontroller of the distance to the objects, and an algorithm in the rover changes the direction to avoid obstacles.

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

Method

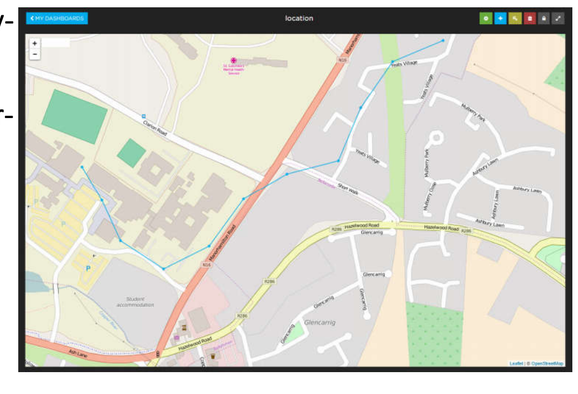
In the **diagram** below we can observe the different components and the connections, the power wires have not been drawn to keep the diagram easy to read.

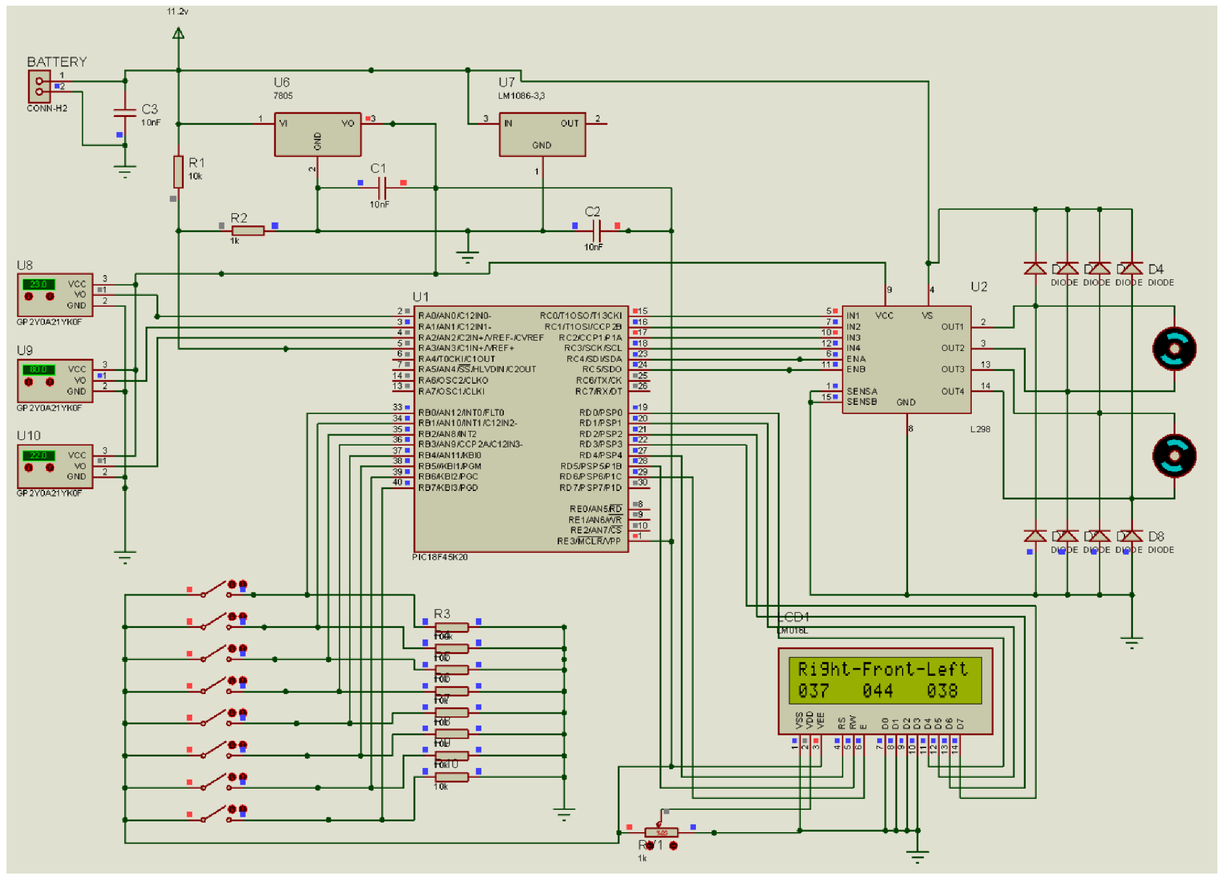
The **PIC** receives instructions from the **Arduino**, which receives data from the **GPRS and GPS module**. The PIC also receives data from the **distance sensors** and sends orders to the **motor controller** and to the **LCD module**.



Results

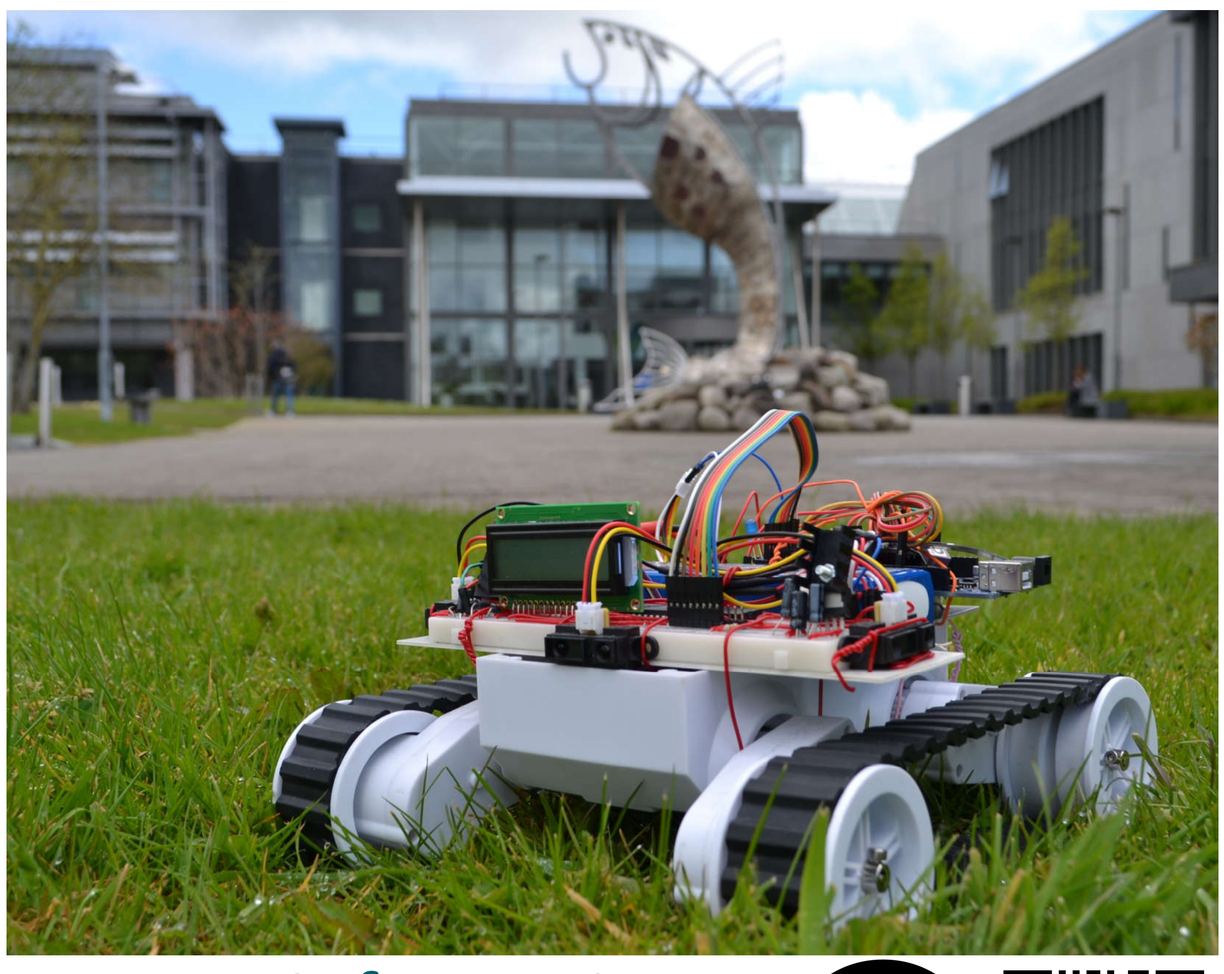
- Design and develop the circuits
- Develop software for the PIC
- Develop Software for the Arduino
- Program the interactions between the server and the Arduino
- Program the interactions between the Arduino and the PIC
- Develop User Interface for the webpage.
- Build the components in the chassis
- Manual and autonomous modes
- Tracking by GPS in map





Conclusions

During the execution of the present project has been covered different areas studied during the degree in **electronic engineering**, mounting **analog** and **digital** electronic components and developing all the program for the **PIC** microcontroller and for the **Arduino**. Also has been covered a few areas far from the electronics and more related with the **informatics** and **automation** and **mechatronics** engineering.



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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