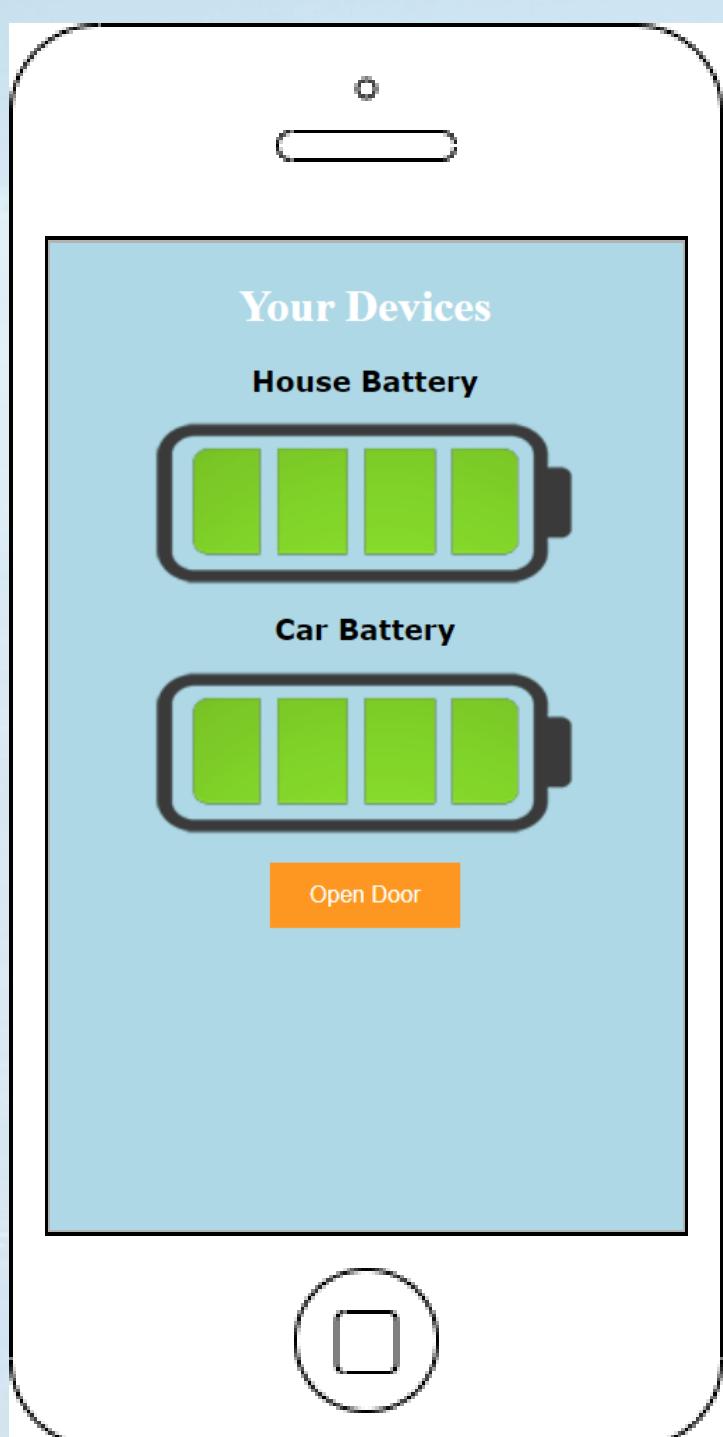


## Skills and Technologies

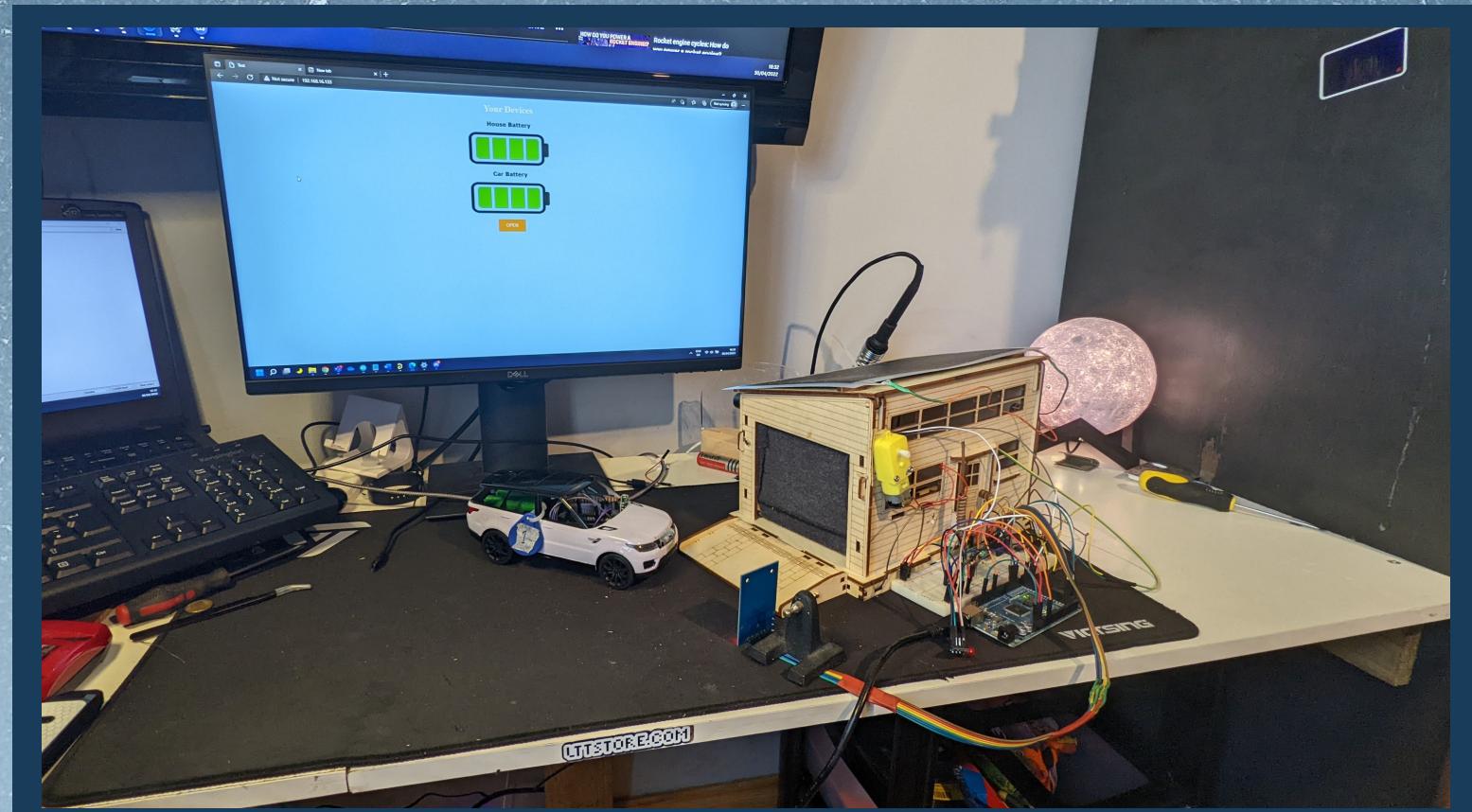
- C/C++ Programming
- RFID Scanning
- RF Trancievers
- Wifi Networking
- Data Analysis
- Serial/I2C Interface
- Hardware Build & Test
- Arduino IDE
- Solar Technology
- Li-ion Charging

## Results



# Garage of the Future

## Darragh Walker Internet of Things Projects



## Project Description

Given the current climate related issues effecting our planet, we are having to constantly try to lower our carbon footprint as individuals.

### Proposal

Garage of the Futures aims to outline the upsides of a carbon neutral life and will hopefully be a blueprint of things to come. The project incorporates a series of radio devices as well as motors, solar technologies and battery monitoring and charging equipment.

### Data Collection

The data is collected and analyzed for use by both an Arduino Uno and an Arduino Nano, placed in the garage and car respectfully. The Nano collects information from a lipo fuel gauge inside the car, the Uno communicates with both a RFID scanner (RC522) to allow the garage door to be opened securely and automatically and a Rf reciever (MX-05) to recieve data from the Nano, as well as these there is 2 switches to enable the operation of the door and the garages voltage is monitored by the analog input on the Uno.

### Outputs

The Nano interfaces with a 433Mhz transmitter(MX-05) allowing it to send the current battery status of the car back to the garage for broadcasting.

The Uno has been connected to a wifi module(ESP-01) allowing it to transmit the current charge level of both the car and the garage to a website to be monitored by the user, it also operates the roller door using a DC motor paired with a motor driver (L293D) to allow seamless operation of the secure automatic door

### Data Visualization

Using the ESP-01 the arduino uploads the current charge levels visually to a website using battery indicators, the site is programmed in html and updated periodically with the most up to date data. The powerwall has its own integrated battery monitoring and is displayed on an LCD for the user to view

