Overview

Nowadays, Electric Vehicles are considered as replacement of the traditional vehicles, because of their energy efficiency, environment advantages and cost advantages. The development of Electric Vehicles has received large amounts of government assistance in recent years. However, the sales of Electric Vehicles does not grow as expected, because of the limitations of the battery. Charging inconvenience, reliability of cells, lack of wireless network availability and higher cost limit the sales of Electric Vehicles. The most important point is that there is no comprehensive management system for the battery. That is why the modular battery system is the focus of this project.

Aims and Objectives

• Design **battery module** with **network communication ability** using the Arduino microcontroller.
• Handle all battery status and information by the **centralized database** using Arduino through WIFI interface.
• Present the battery information to the **IOS Application**.

Methodology

Figure 1 shows the whole system operation.

- Process battery information by Fuel Gauge IC BQ34Z100
- Handle the data from BQ34Z100 with I2C channel of each module
- Control the data read by PCA9546 I2C Multiplexers
- Pass data to server through WIFI shield accessing specific access point
- Present data in IOS application by using Node.js (server-side script)

The user can use the IOS application to monitor the battery situation without physically checking.

Results

The system was built and tested and the interface is shown on the above figures (Figure 2 and 3).

Just clicking a button, the information of different battery modules will be shown on the screen as the above figures (Figure 4 and 5).