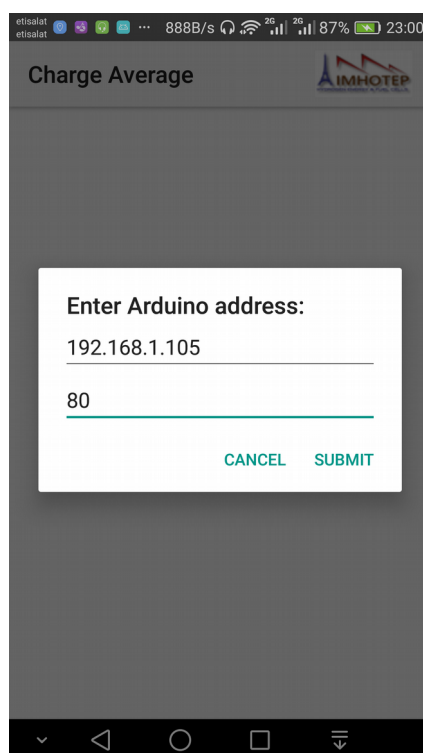
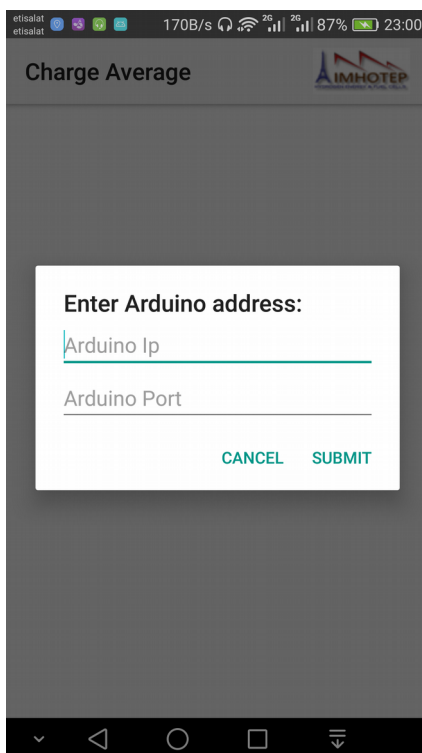
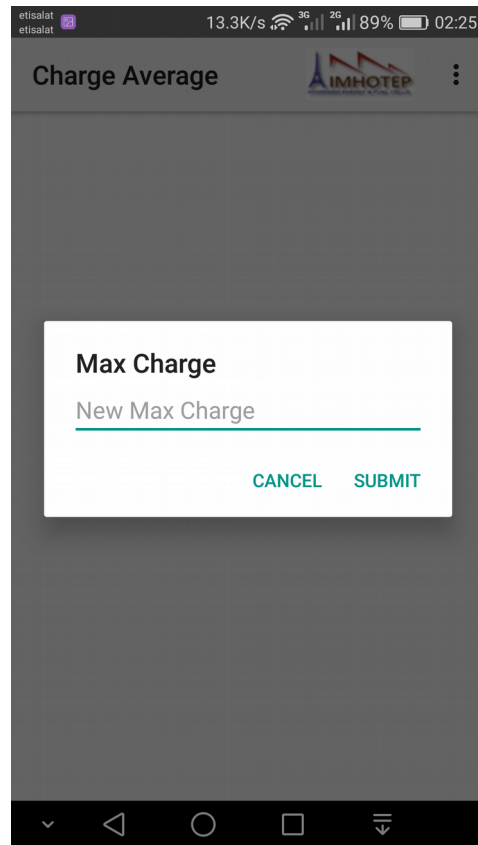
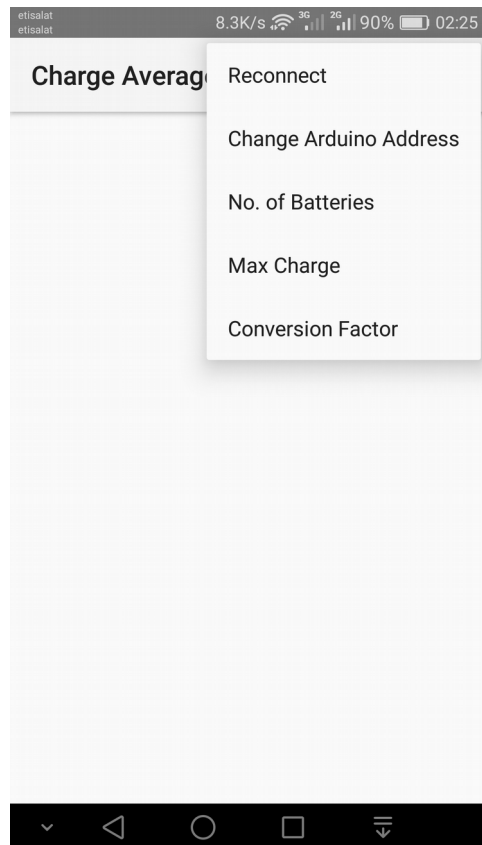
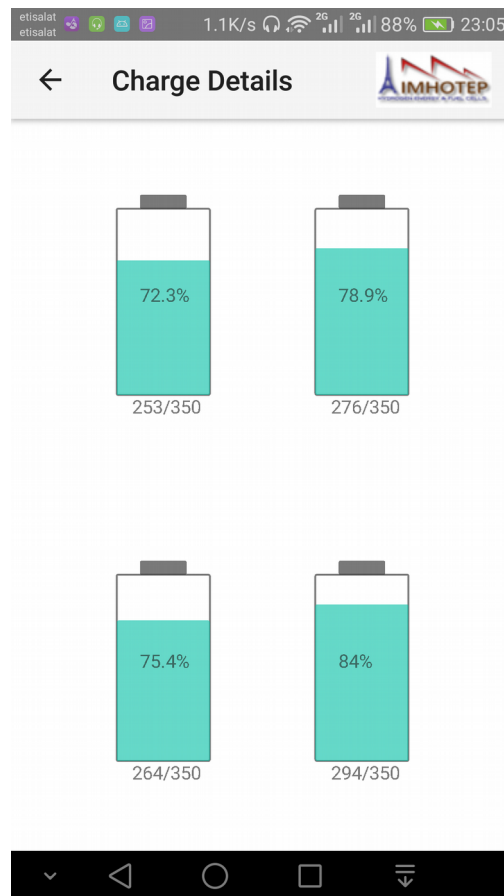
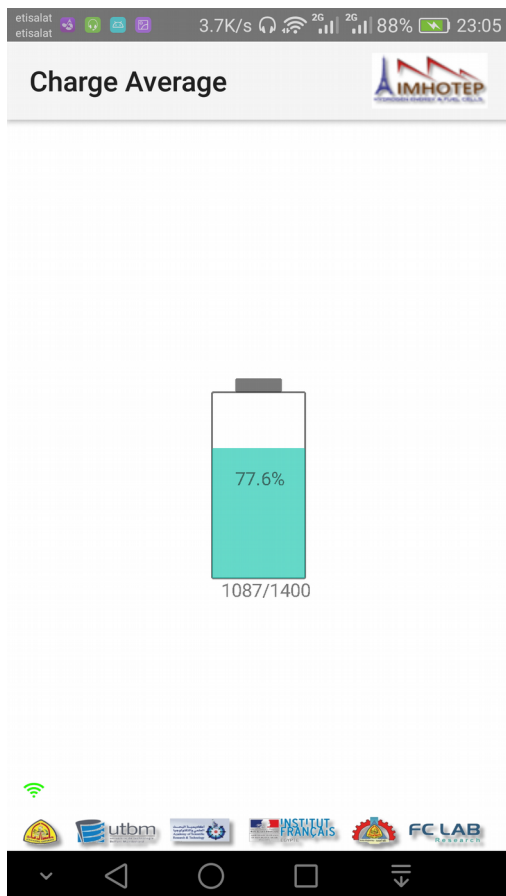


Android App

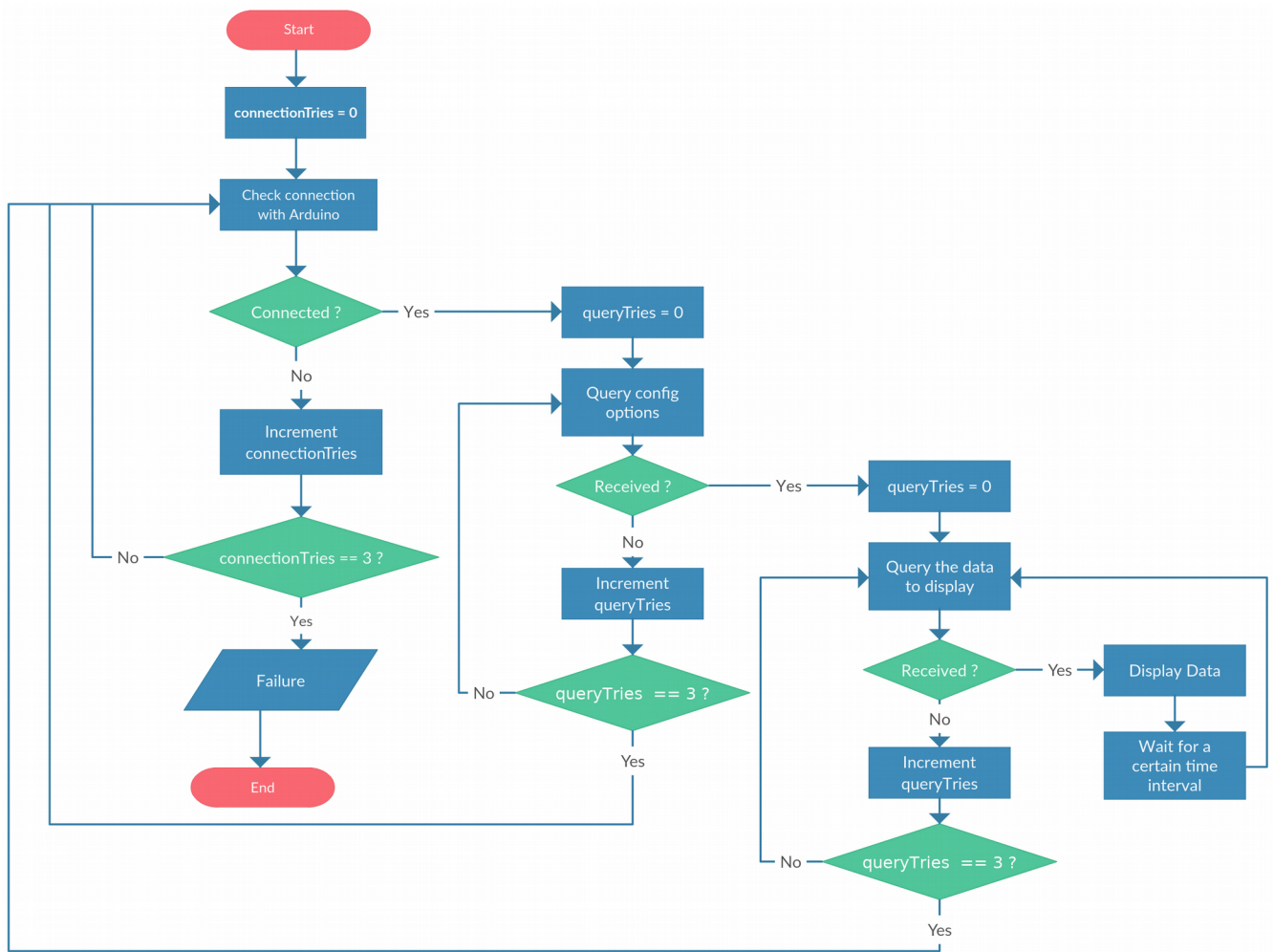
The application works as a simple interface for the hardware to display the charge of the battery.

1. It starts with prompting the user to enter the connection information for the arduino.
2. On submitting, the application tries to connect to the arduino with timeout of 10 seconds.
3. After establishing the connection, the application starts to query the arduino for some information such as (the number of batteries, the max reading, the conversion factor and the reading for each battery).
4. The application then display the average reading for the batteries in the main view with the percentage of the charge.
5. On touching the view, the application displays the charge for each battery alone.
6. There is an options menu on the right side of the action bar for the user to change the config data such as the max charge for the batteries and to try to reconnect or change the connection information to the arduino.





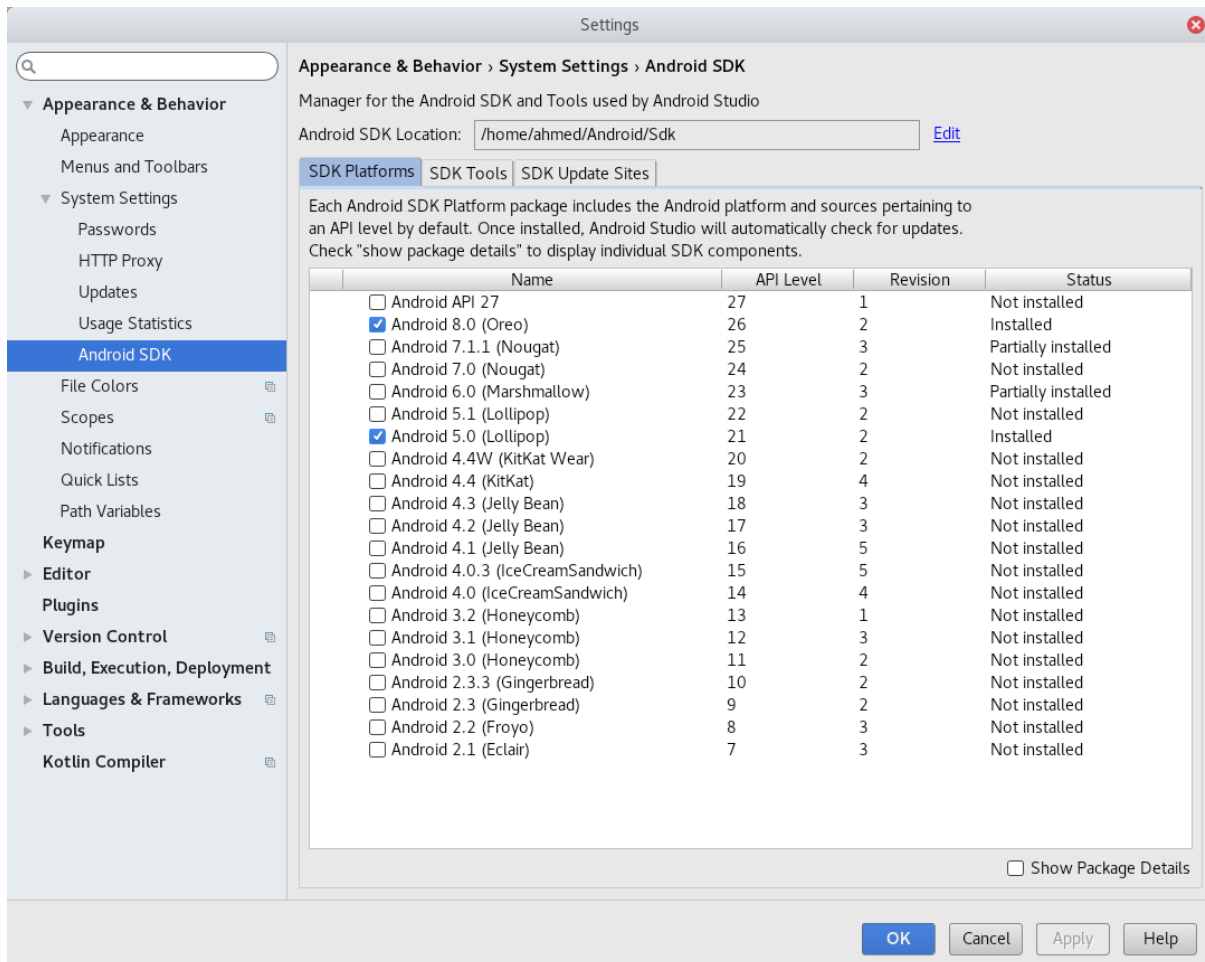
Flowchart:



Flowchart for the application

To edit the code:

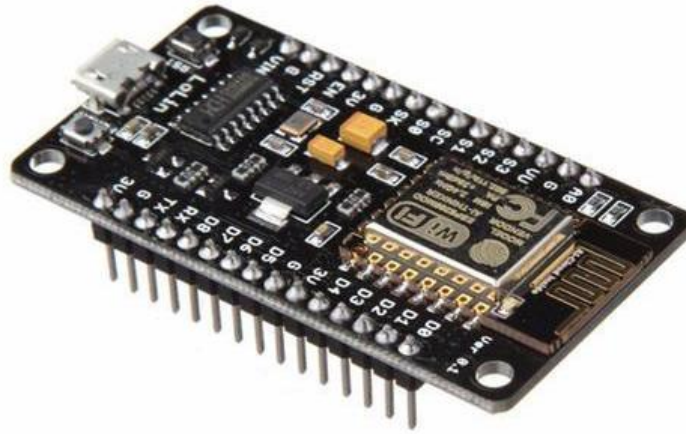
1. Open the code in Android Studio 3.0.1 or later.
2. Download the SDK versions 21 and 26 as the min. and max. APIs for the application to build from **File > Settings > Appearance & Behavior > System Settings > Android SDK** and mark the required APIs.



3. Download the gradle version 4.1 to build the application.
4. To run the apk, you need a device with Android OS version 5.0 (Lollipop) or later to version 8.0 (Oreo).

Arduino side:

On the arduino side, we used Nodemcu board - It is an arduino compatible board with ESP8266 WiFi module implemented on it - .



The board starts with trying to connect to the network specified in the code and on a successful connection, it prints out its IP address so we can access it from the android app.