

## IoT Temperature Sensor

The aim was to design a device that can sense temperature of the environment and can periodically upload temperature data to a server on a cloud.

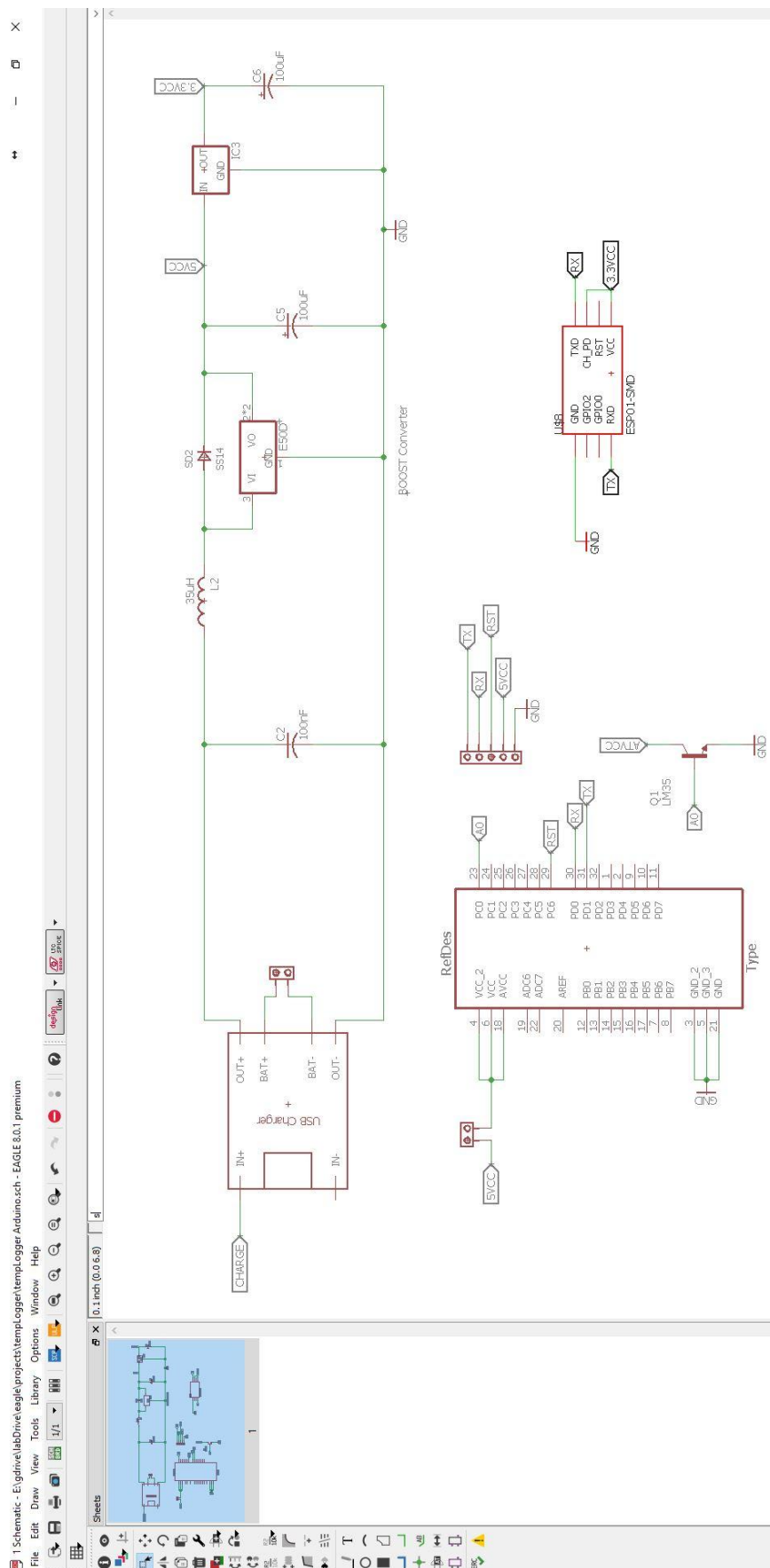
Few features of the device should be:

- Small
- Powered with lithium polymer cell
- Energy efficient
- WiFi Enabled

Components Used:

- TP4056 Module for LIPO battery charging and protection
- ATmega328P – AU (TQFP package for smaller size)
- Boost Converter of 5VDC output
- AMS1117 IC (3.3V linier voltage regulator for WiFi module)
- ESP-01 (ESP8266 based WiFi module)
- LM35 – Temperature sensor
- Lithium Polymer battery (1s)

## Schematic Design (In Eagle PCB):



## PCB Design (In Eagle PCB):

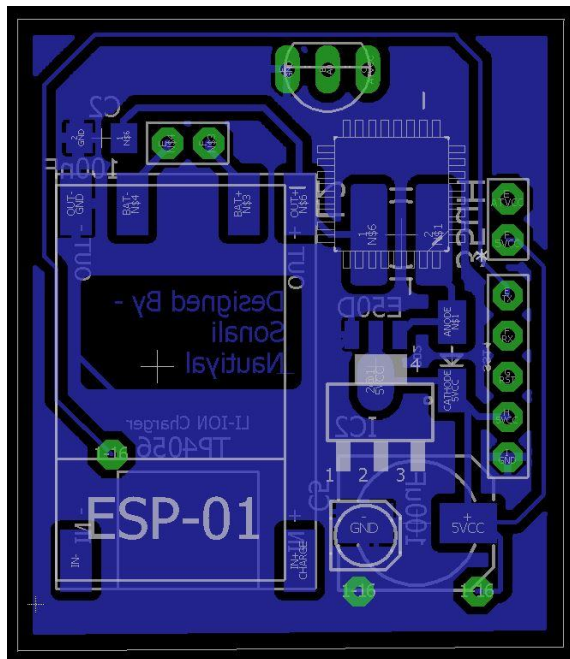


Fig: Bottom Layer

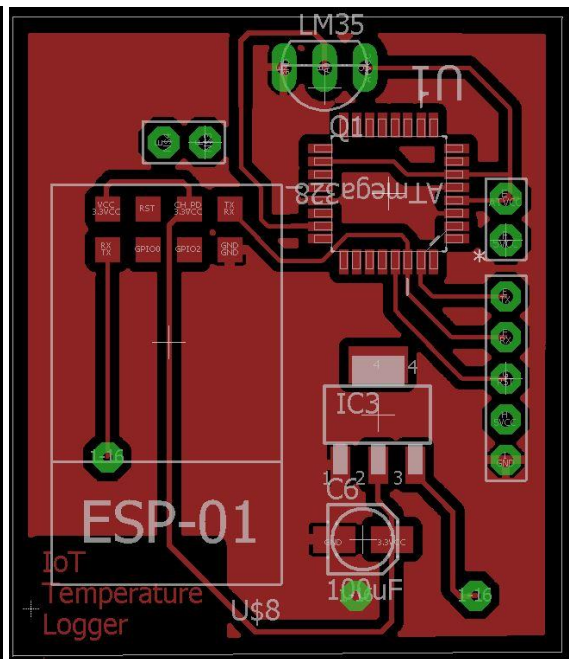


Fig: Top Layer

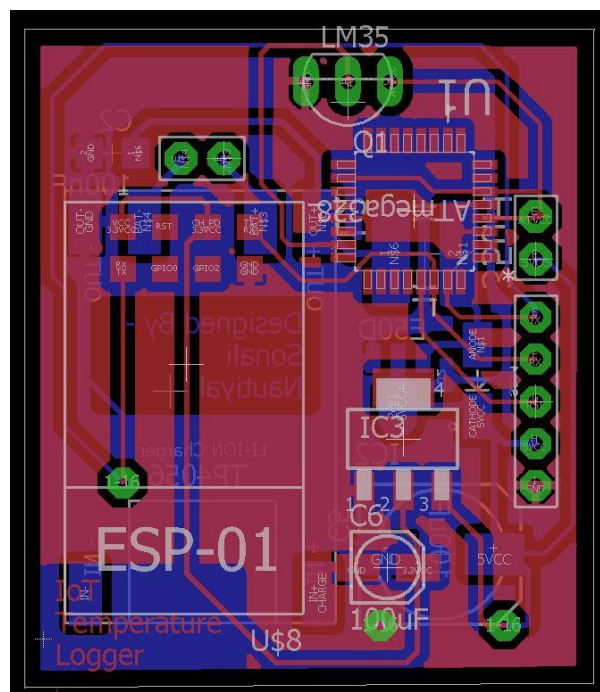


Fig: Dual Layer Design for compact size

## PCB Fabrication:

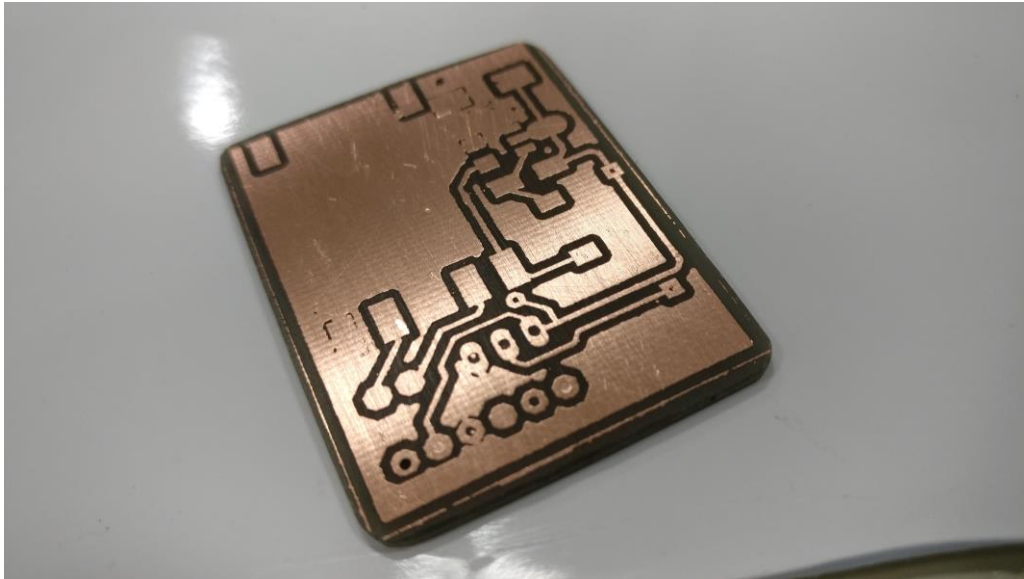


Fig: PCB after etching in ferric chloride (Unpopulated)

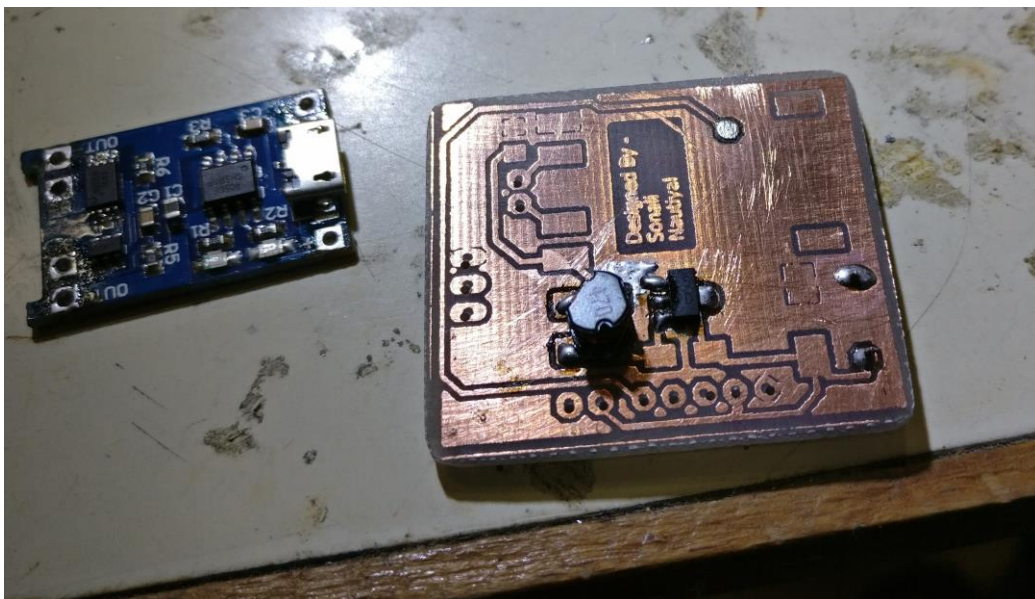
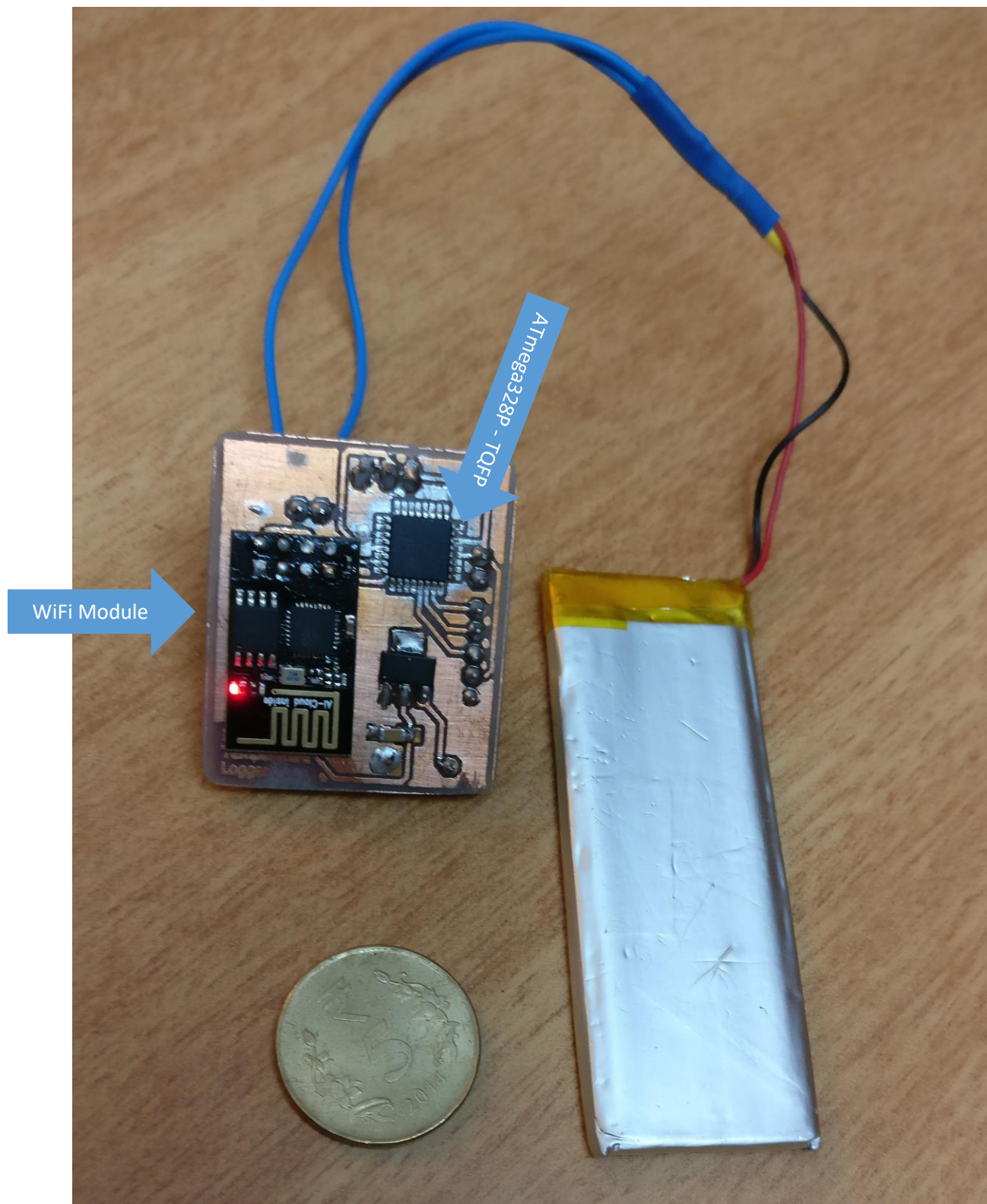
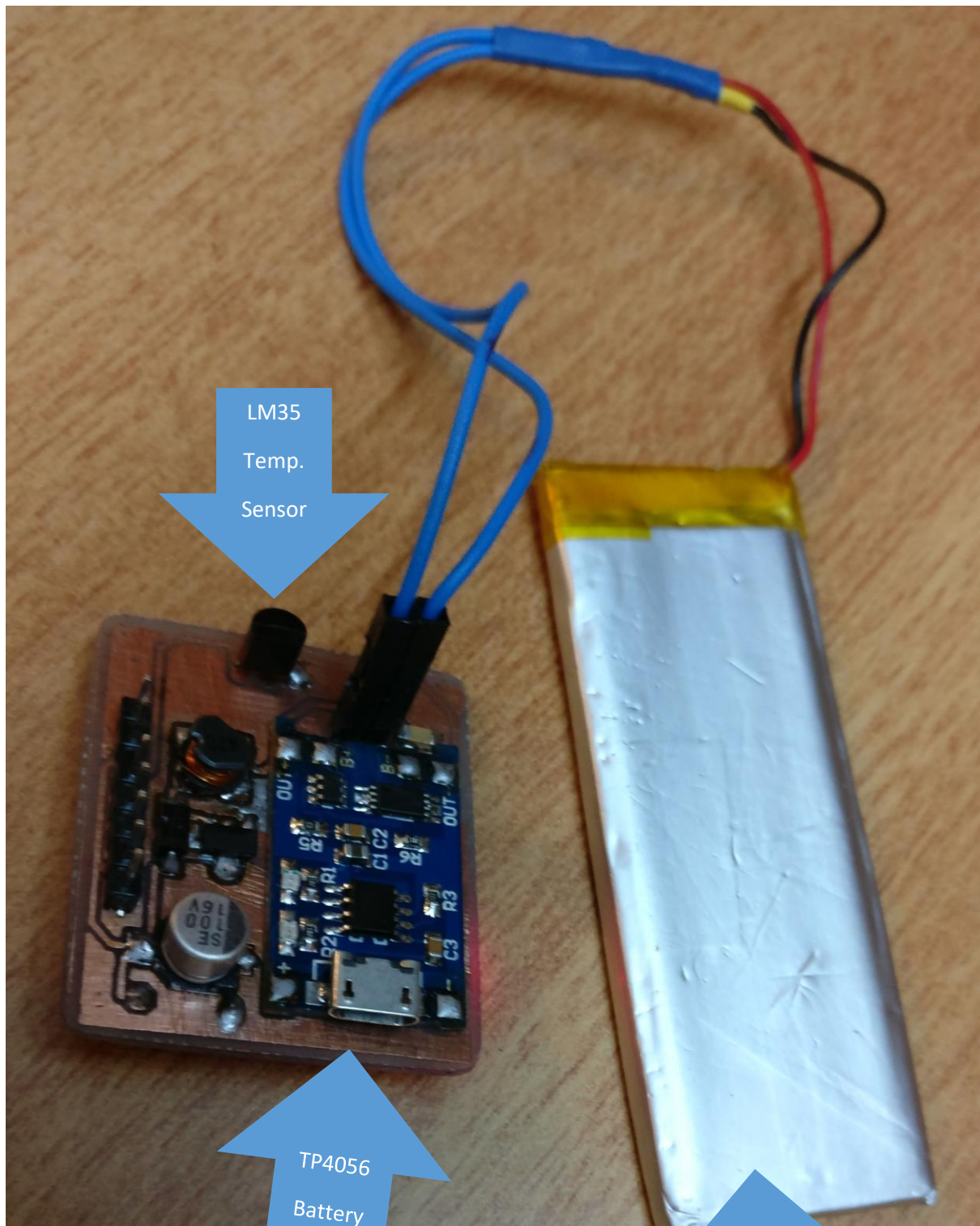


Fig: Soldering SMD components onto the PCB



The Final Device:





LM35  
Temp.  
Sensor

TP4056  
Battery  
Charger

LiPo  
Battery

Could Access:

## Temperature Logger

Channel ID: **330528**

Author: [anahera](#)

Access: Public

This channel was created by Sonali Nautiyal. An IoT temperature sensor stores data here

Private View

Public View

Channel Settings

Sharing

API Keys

Data Import / Export

+ Add Visualizations

Data Export

MATLAB Analysis

MATLAB Visualization

### Channel Stats

Created: [about 10 hours ago](#)

Updated: [less than a minute ago](#)

Last entry: [about 4 hours ago](#)

Entries: 30

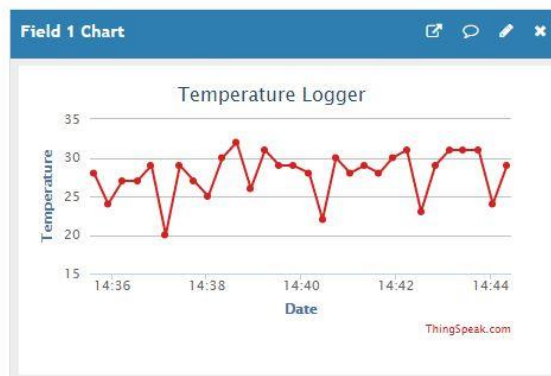


Fig: Accessing real-time temperature data stored in cloud server

Public Access Link:

<https://thingspeak.com/channels/330528>