# REQUIREMENTS ANALYSIS

## Software Requirement

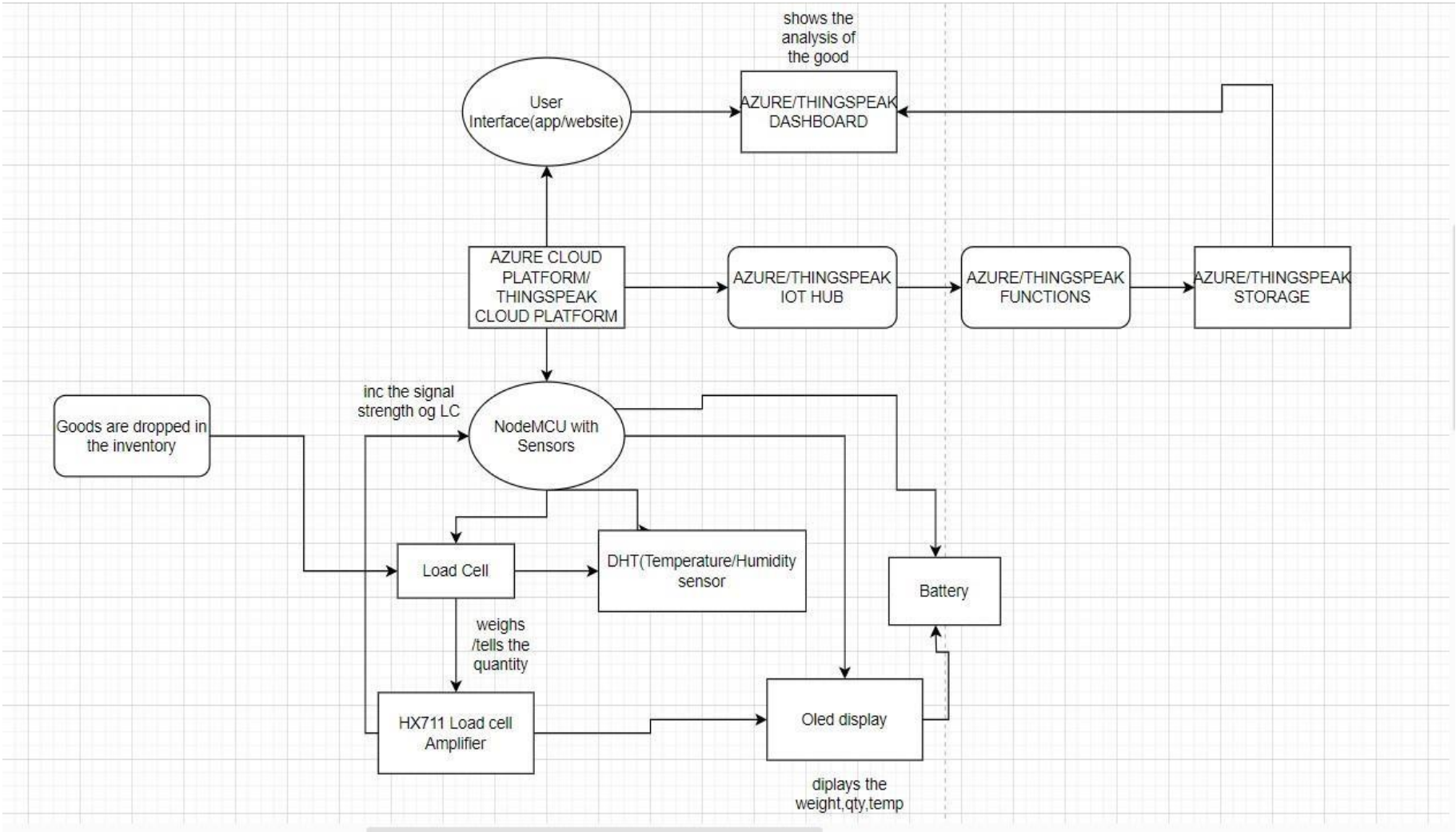
- Operating System : Windows 7 Professional 32-Bit/64 bit
- Arduino
- ThingSpeak Platform

## Hardware Requirement

From the given scenario, we draw the following requirements:

- NodeMCU - 1
- Load Cell - 1
- HX711 Load Cell Amplifier Module
- 128*64 OLED Display
- Connecting Wires
- DHT Sensor
- MDF, Cardboard, Foam Sheet - for Encloser
- 7.4-volt li-ion Battery
- Processor : Intel (R) Core ™ i3 or higher version
- Memory Size : 2 GB or higher
- HDD : 40 GB (Minimum)

# ARCHITECTURE AND DESIGN



# IMPLEMENTATION

## Hardware Setup:

Assemble the hardware components including NodeMCU, load cell sensors, HX711 load cell amplifier module, OLED display, connecting wires, and enclosure materials.

Connect the load cell sensors to the HX711 amplifier module and the NodeMCU microcontroller according to the hardware specifications and wiring diagrams. **Sensor Calibration:**

Calibrate the load cell sensors to ensure accurate measurement of inventory weight. This typically involves applying known weights to the load cell and adjusting calibration parameters accordingly.

## Programming:

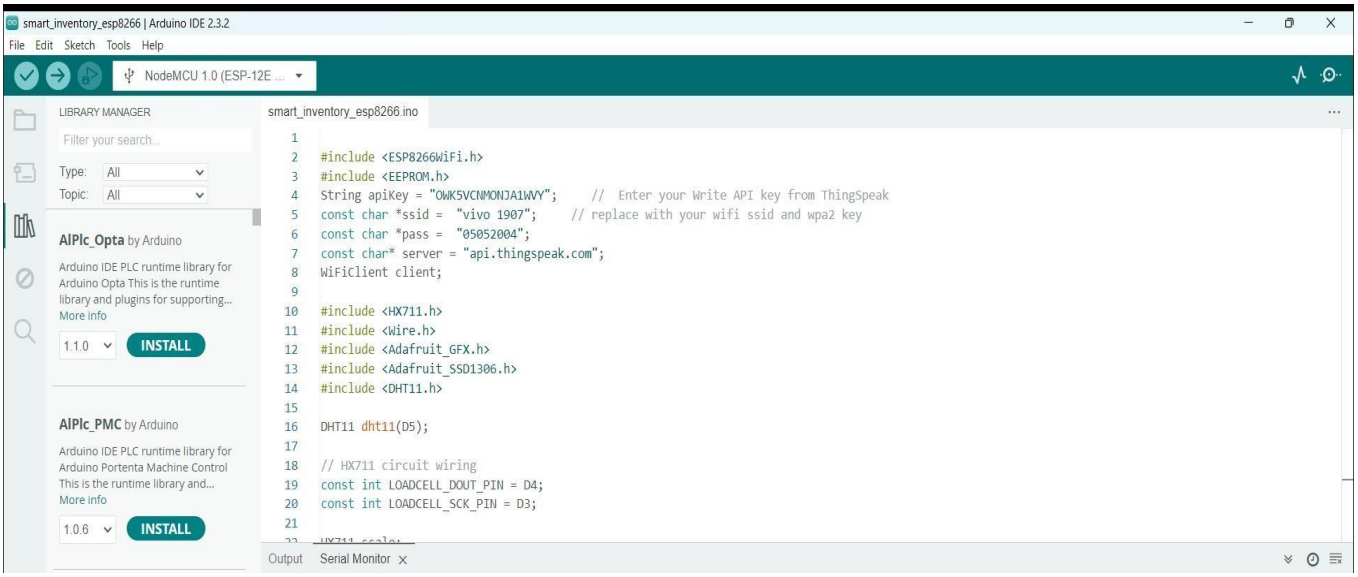
Writing the firmware code for the NodeMCU microcontroller using the Arduino IDE or similar development environment.

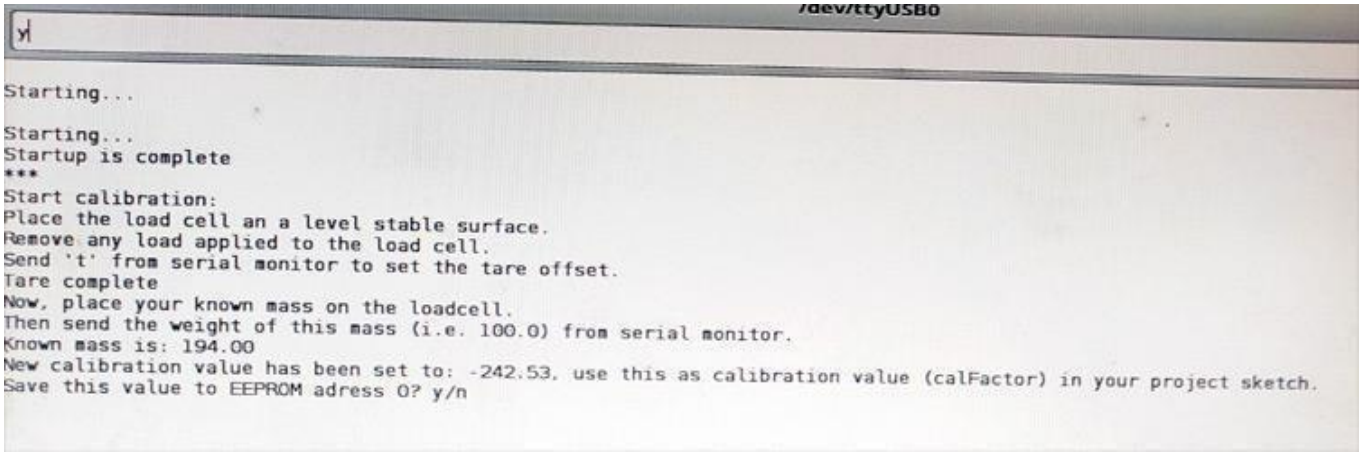
Implement code to read data from the load cell sensors via the HX711 module, display inventory information on the OLED display, and transmit data to the ThingSpeak cloud platform for remote monitoring.

```
#include <ESP8266WiFi.h>
#include <EEPROM.h>
String apiKey = "OWK5VCNMONJA1WVY";          // Enter your Write API key from ThingSpeak
const char *ssid = "vivo 1907"; // replace with your wifi ssid and wpa2 key const
char *pass = "05052004"; const char* server = "api.thingspeak.com"; WiFiClient
client;
```

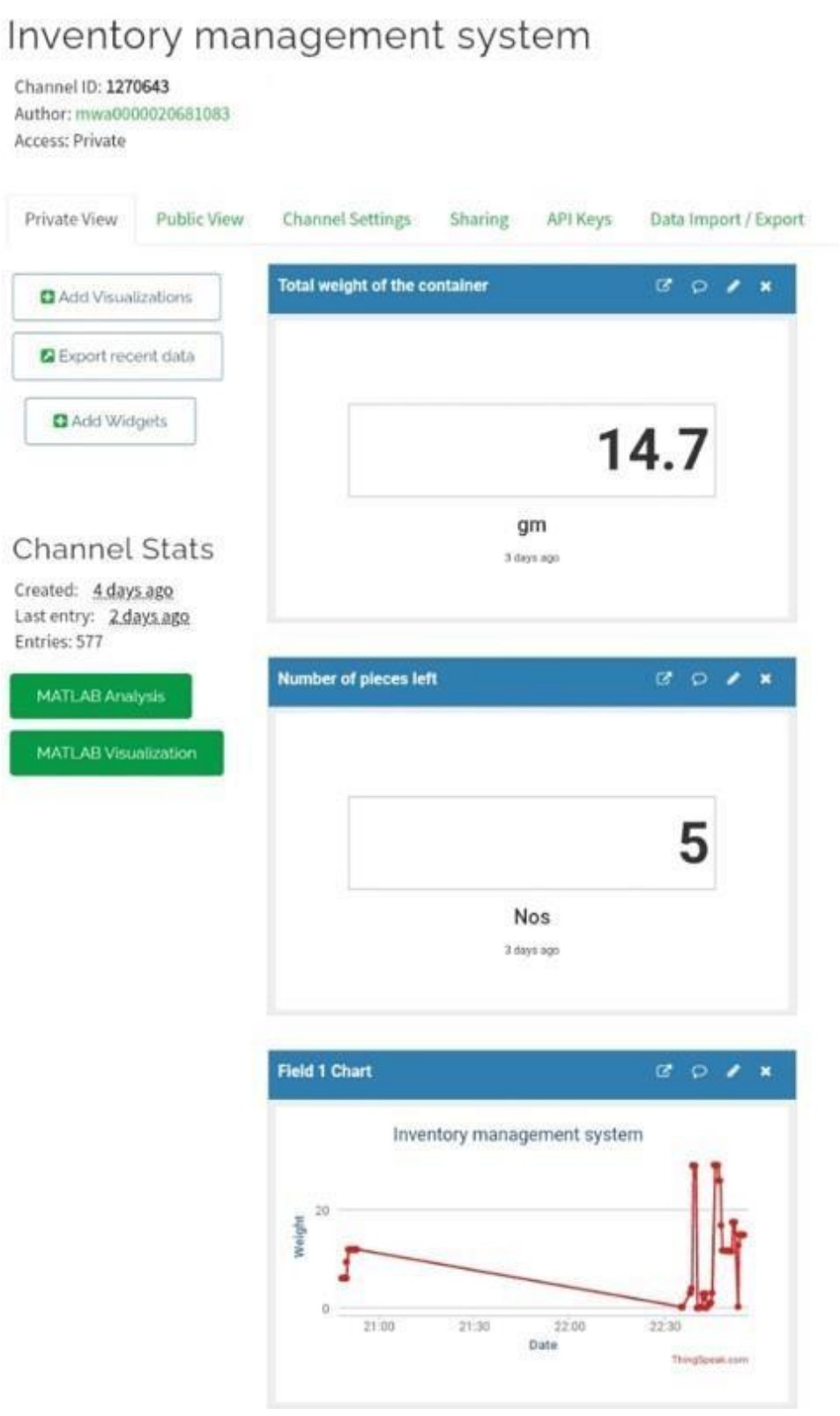
# EXPERIMENT RESULTS AND ANALYSIS

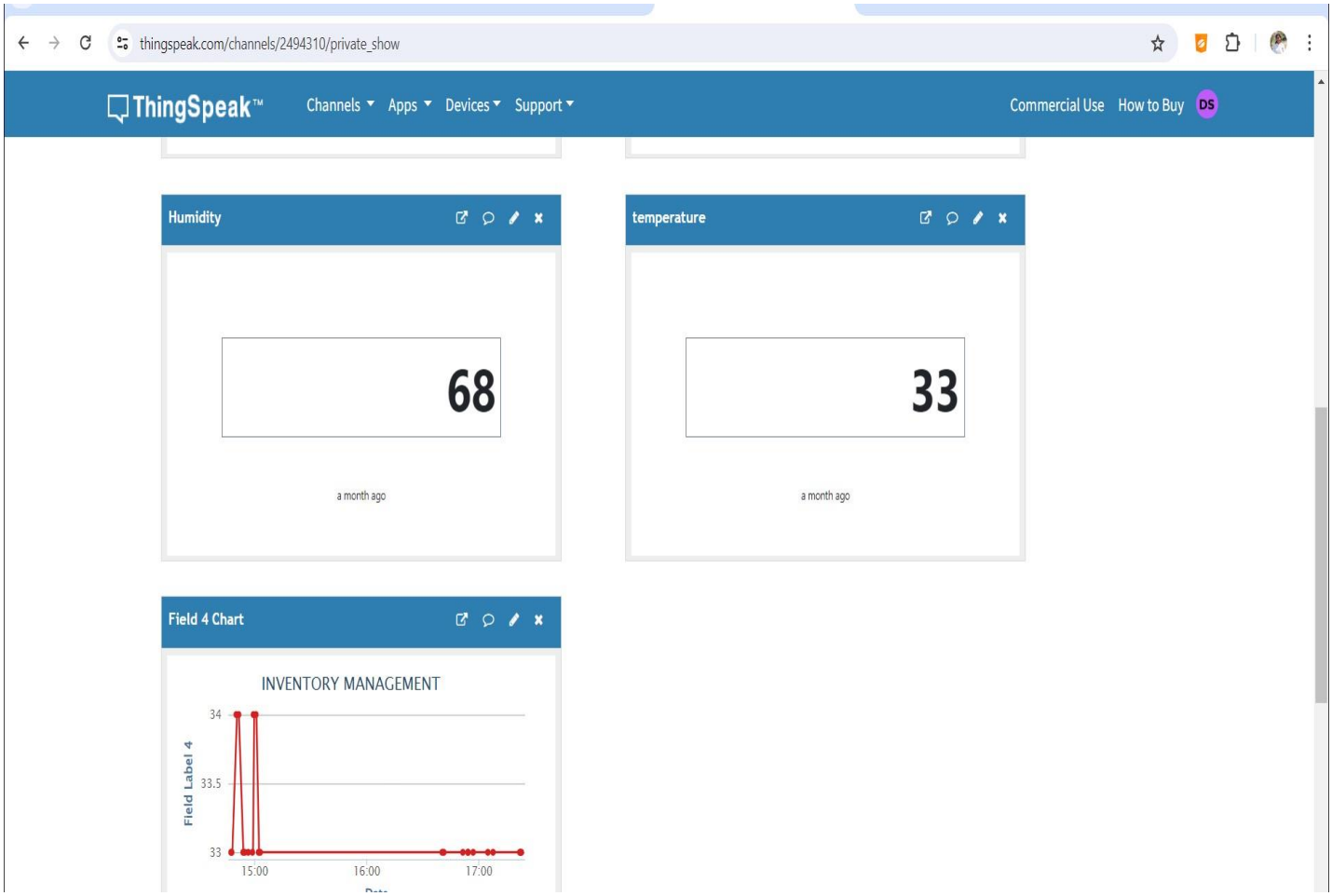
## Connection Check in Arduino



**ThingSpeak Response Page**




thingspeak.com/channels/2494310/private_show
ThingSpeak™
Channels
Apps
Devices
Support
Commercial Use
How to Buy
DS
Humidity
68
a month ago
temperature
33
a month ago
Field 4 Chart
INVENTORY MANAGEMENT
Field Label 4
34
33.5
33
15:00
16:00
17:00