IoT In-home Display Development Project applied to energy Management
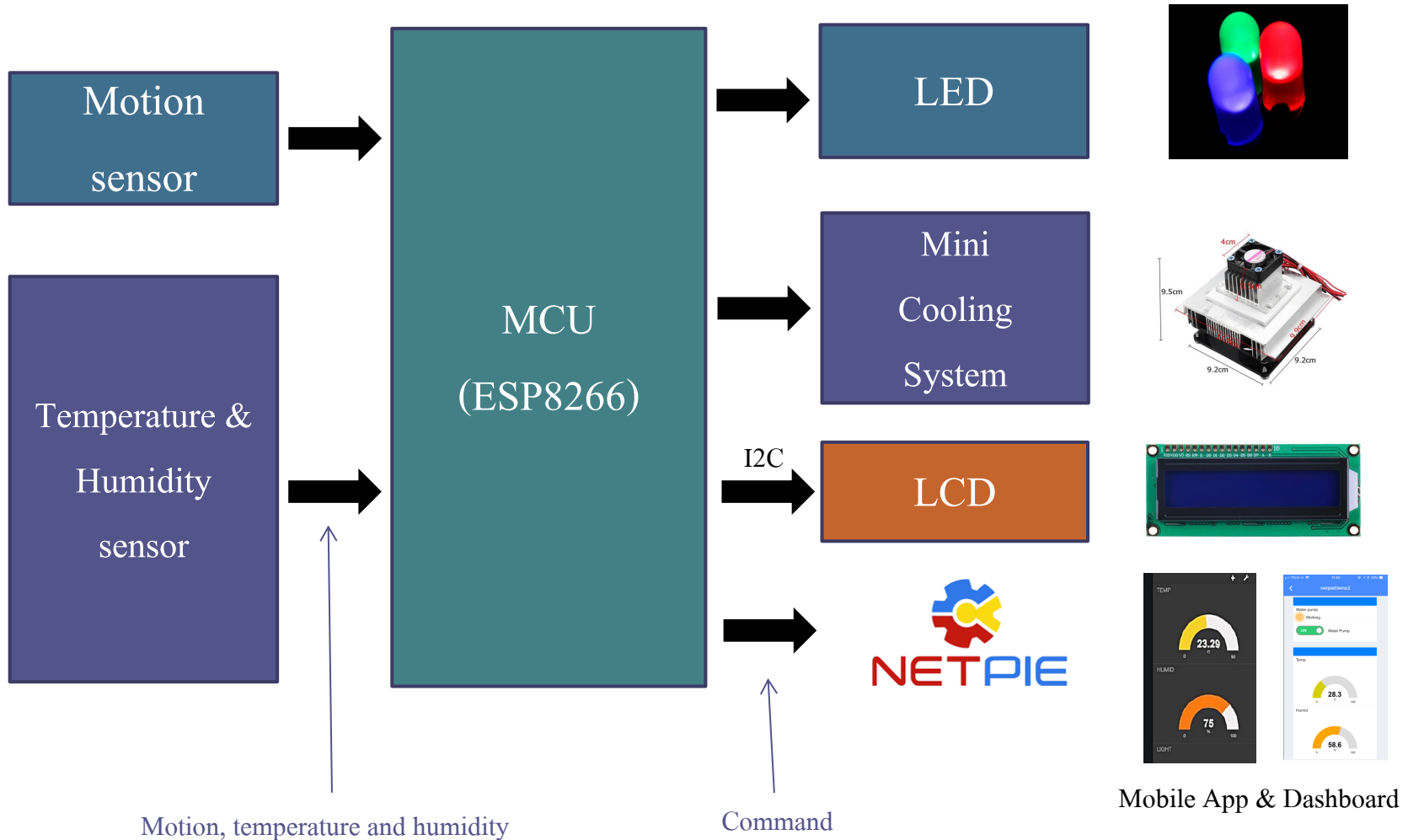
Smart Room

Conceptual Design
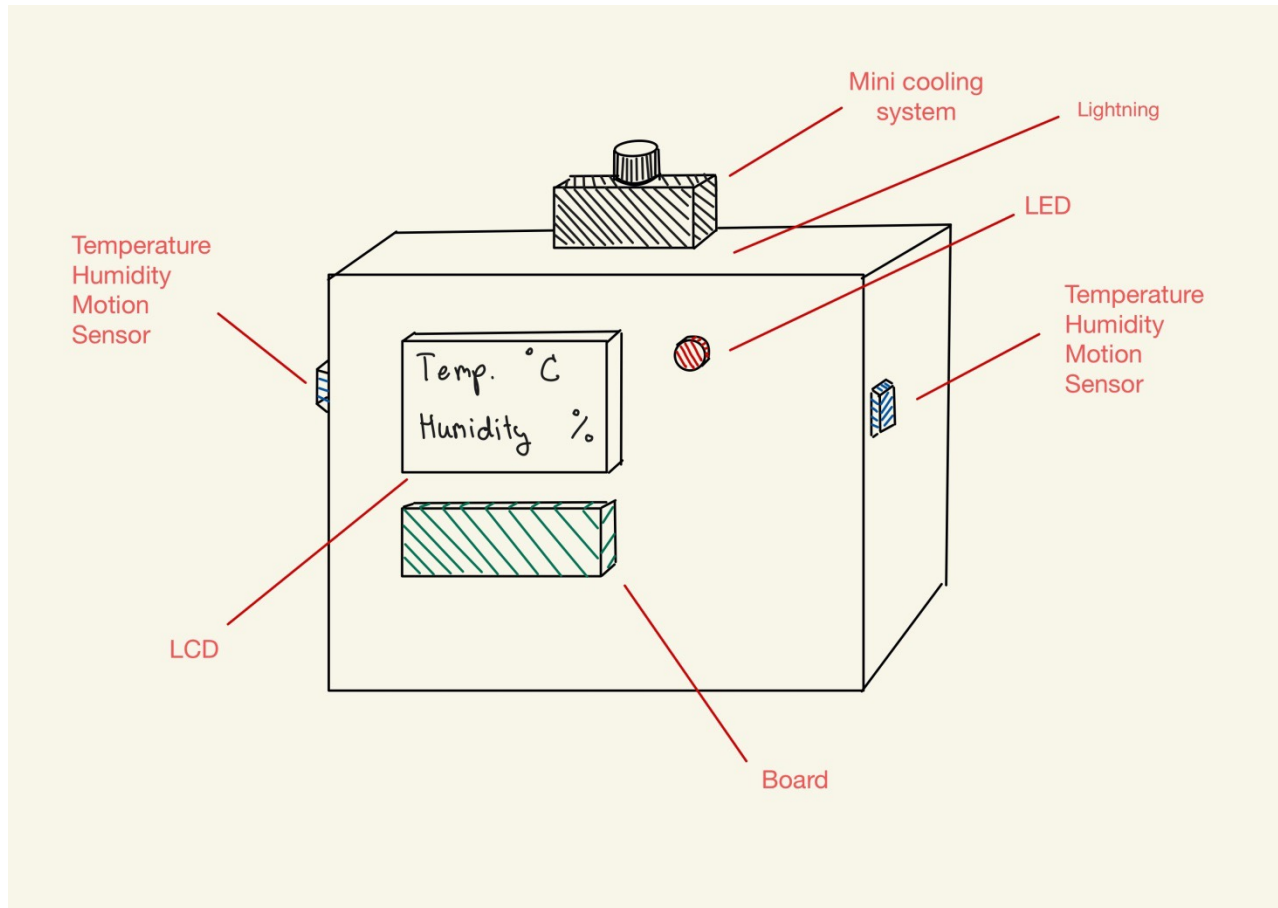
Features

- Real-time measurements & LCD display
  - Temperature in degree celcius
  - Humidity in percentage
- Mini-Cooling system
  - Control temperature automatically
  - Notification and auto turn off with motion sensor
- Lighting control
- Smart plug control
  - Motion sensor control
- WiFi connection to controling and monitoring
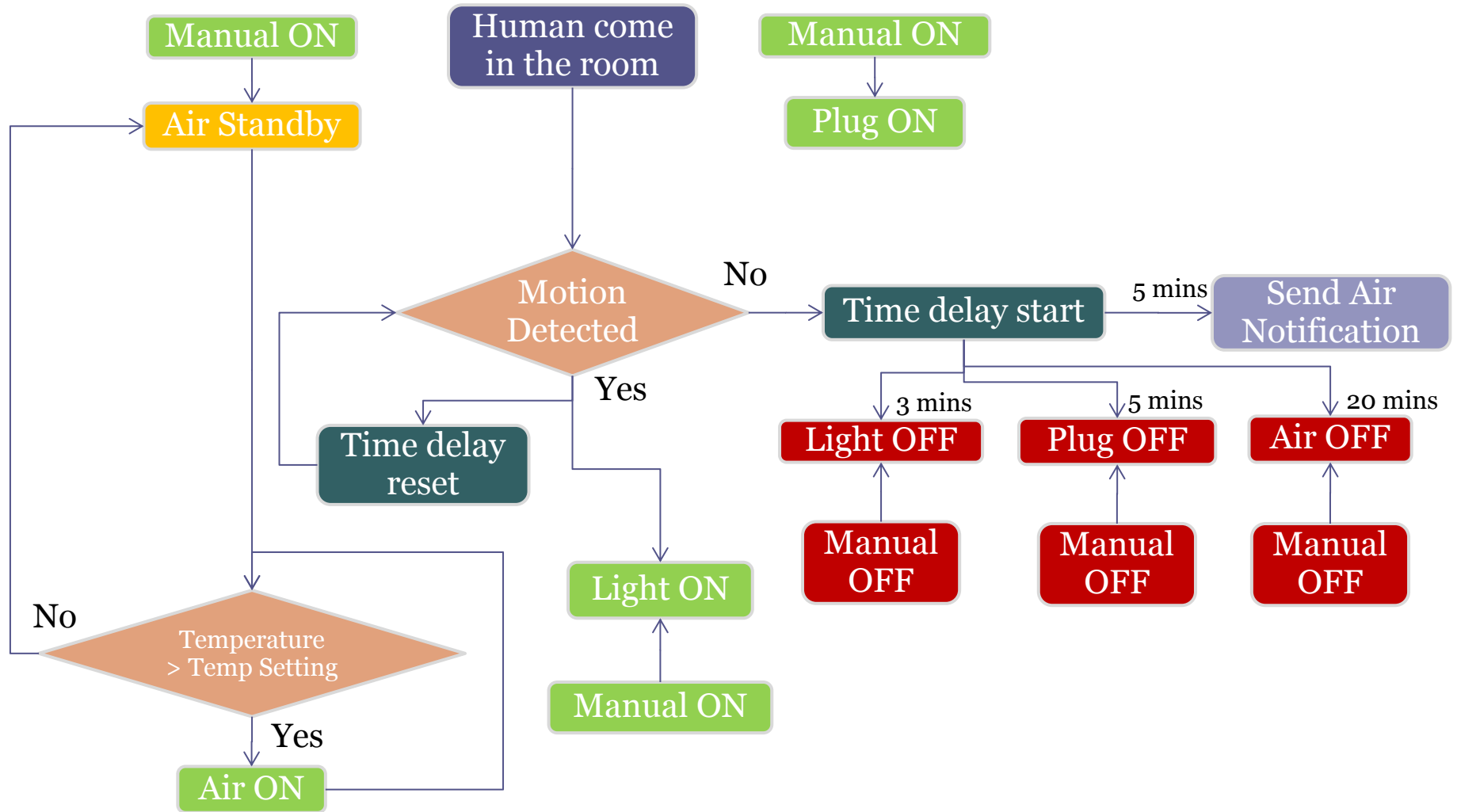
System components

1. The box (imitate room)
2. Sensor
   - Motion sensor
   - Temperature sensor
   - Humidity sensor
3. Arduino ESP8266
4. LED
5. Mini cooling system
6. LCD
7. Smartphone

Hardware connection

Motion sensor

Temperature & Humidity sensor

MCU (ESP8266)

LED

Mini Cooling System

I2C

LCD

NETPIE

Motion, temperature and humidity

Command

Mobile App & Dashboard

Software Flowchart
Lighting/ Air conditioner/ Smart plug

Project Timeline

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Prepare equipment	▬▬	▬▬						
Design & Software Programing & Testing								
-Lighting			▬▬	▬▬	▬			
-Air Conditioner			▬▬	▬▬	▬			
-Smart plug			▬	▬▬	▬			
-Netpie			▬	▬▬	▬▬			
Hardware implementation								
-Lighting			▬▬	▬▬				
-Air Conditioner				▬	▬			
-Smart plug			▬▬	▬▬				
Record & Presentation					▬	▬▬	▬▬	

Work distribution

- Lighting & Smart Plug system
  - Design & software programing
- Air conditioner system
  - Design & software programing
- Hardware implement & Netpie
  - Design layout
  - Install hardware
  - Design and build Netpie

Work distribution

- Hardware – Sahassawat
- Motion sensor – Dineenath
- Temperature sensor - Pratimakorn