



University of the East
Manila Campus
College of Engineering
Computer Engineering Department



**NCP4304: Embedded Systems 2 Laboratory
(Internet of Things)**

1st Semester, Academic Year 2022 - 2023

IoT-Based Disaster Monitoring System

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INTERNET OF THINGS PROJECT

Project Title	IoT-Based Disaster Monitoring System
Project Description	The system will monitor and alert people (near the area) to various disasters such as air quality, fire, and flood. Also, the system can detect and monitor the temperature and humidity of the surrounding environment.
Sensors & Actuators	<p>The systems' sensors are the following: flame sensor, humidity sensor, smoke sensor, temperature sensor, and water level sensor. Furthermore, The systems' actuators are LED and a buzzer. The sensors will detect the following:</p> <ul style="list-style-type: none">■ Flame Sensor - It will detect fire within the surrounding environment.■ Humidity Sensor - It will detect the humidity of the surrounding environment.■ Smoke Sensor - It will detect the air quality of the surrounding environment.■ Temperature Sensor - It will detect the temperature of the surrounding environment.■ Water Level Sensor - It will detect the water level of the surrounding environment. <p>Suppose the sensors detect the following scenarios (based on the data coming from the sensor and the condition given by the programmer); the system will alert the people using the actuators mentioned above and the ESP32 web server.</p>
Communication	Using ESPAsyncWebServer Library, HTTP GET Request Method, and WiFi, the data from the sensors to the microcontroller can be accessed and displayed by the ESP32 web server. The ESPAsyncWebServer library, part of the Arduino ecosystem, may configure an HTTP server on an ESP32 microcontroller



	<p>and use the HTTP GET method to process incoming requests. A WiFi-capable ESP32 microcontroller is necessary to use the ESPAsyncWebServer library. The microcontroller may connect to a WiFi network using the WiFi library, allowing data transmission and reception.</p>
Features and Functionalities	<p>The proposed has the following features and functionalities:</p> <ul style="list-style-type: none">■ Alert people near the vicinity when a disaster emerges.■ Display the data in a web application.■ Monitor various disasters mentioned in the project description.
Prototype	



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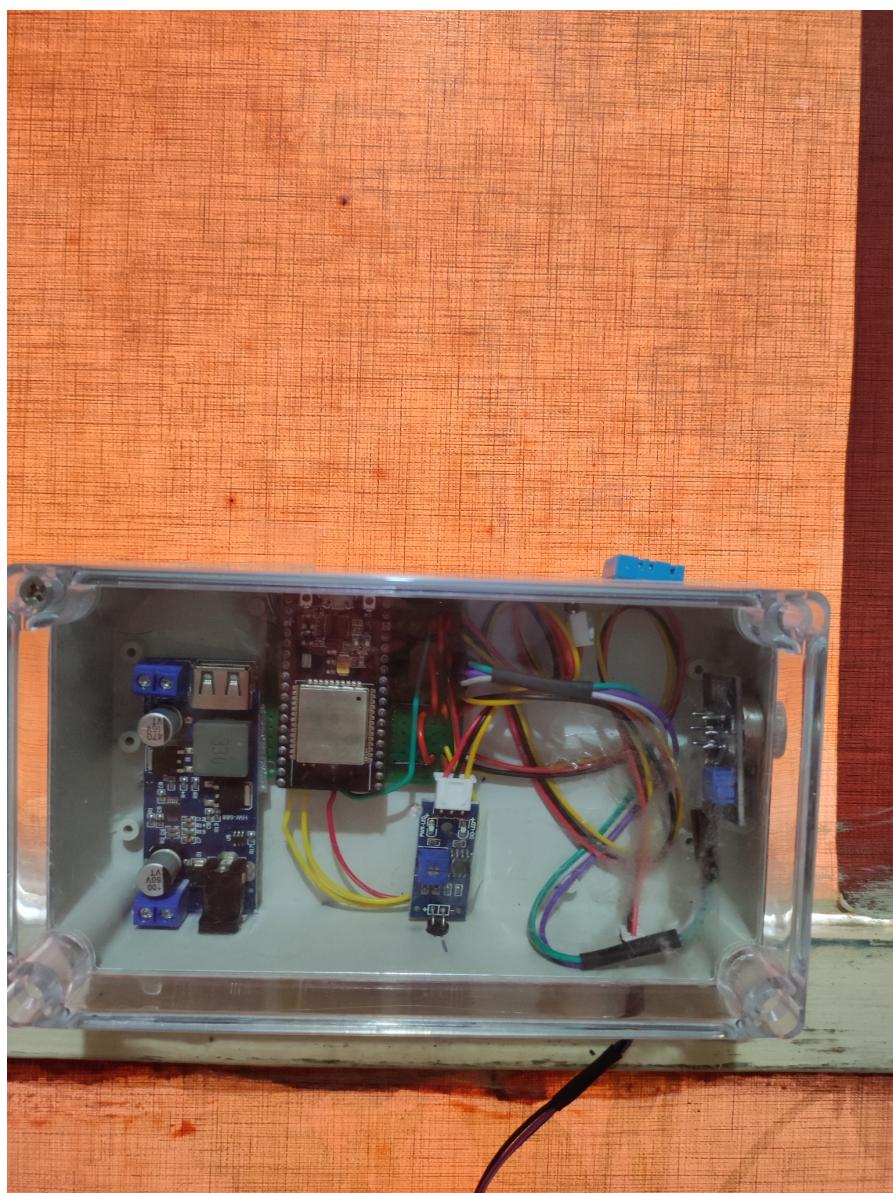


Figure No. 1: Prototype View (1).



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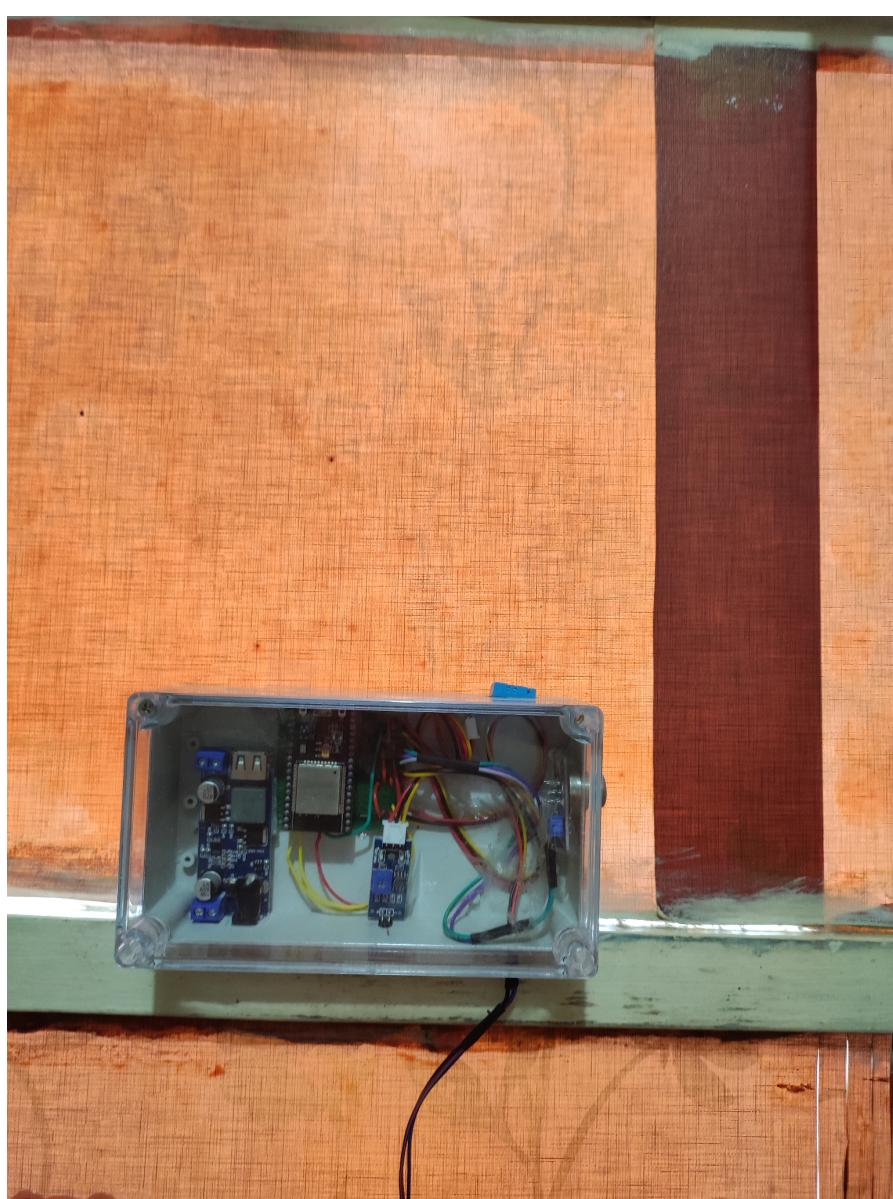


Figure No. 2: Prototype View (2).



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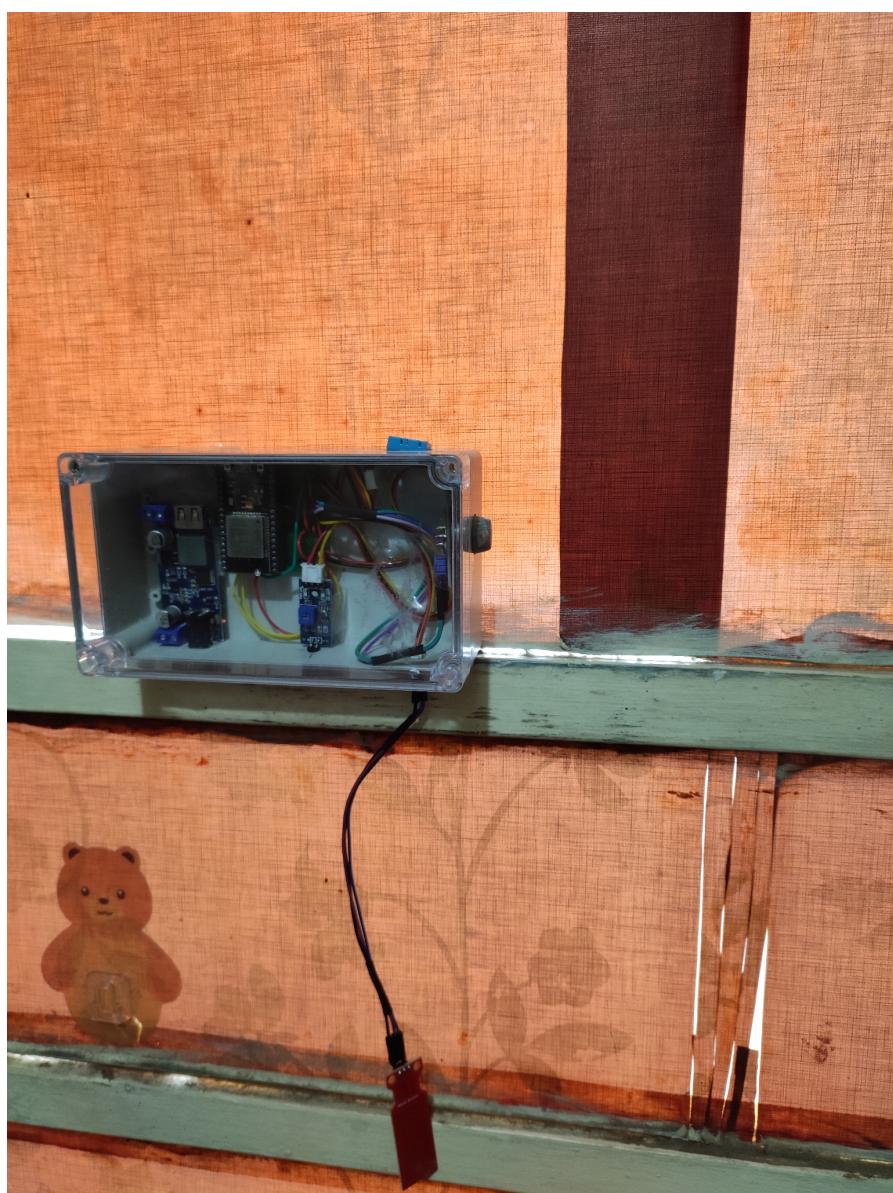


Figure No. 3: Prototype View (3).

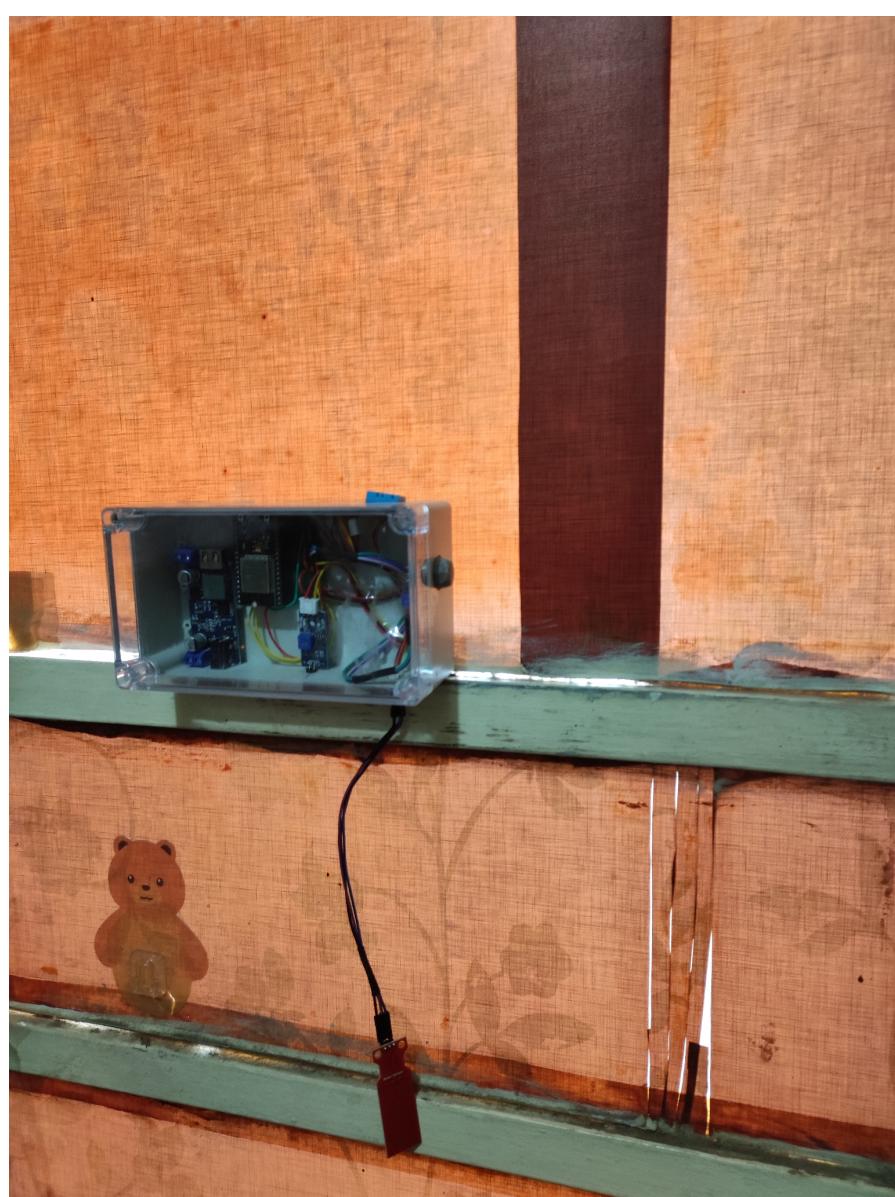
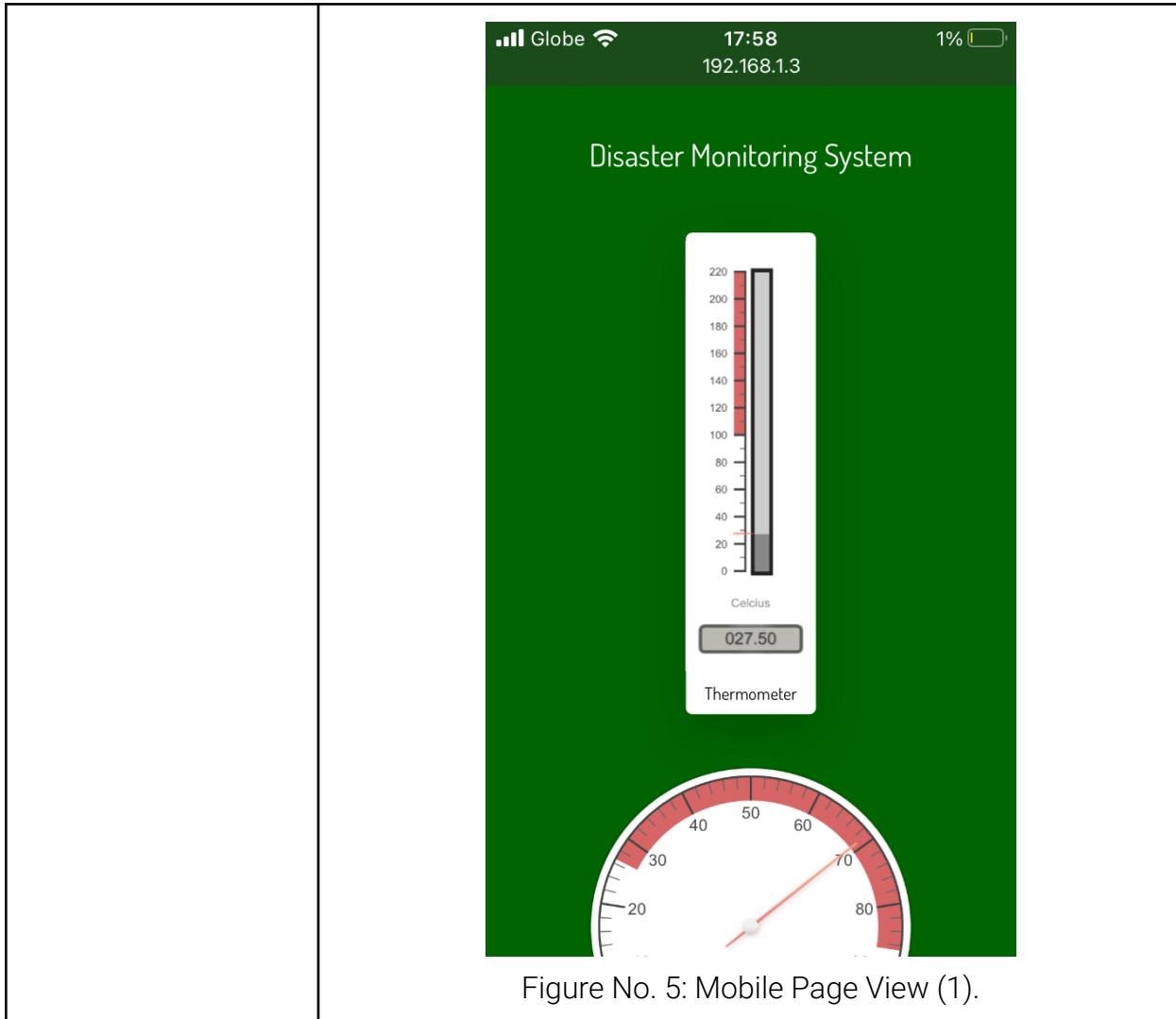


Figure No. 4: Prototype View (4).

**Web App / Mock-Up
(Mobile View)**



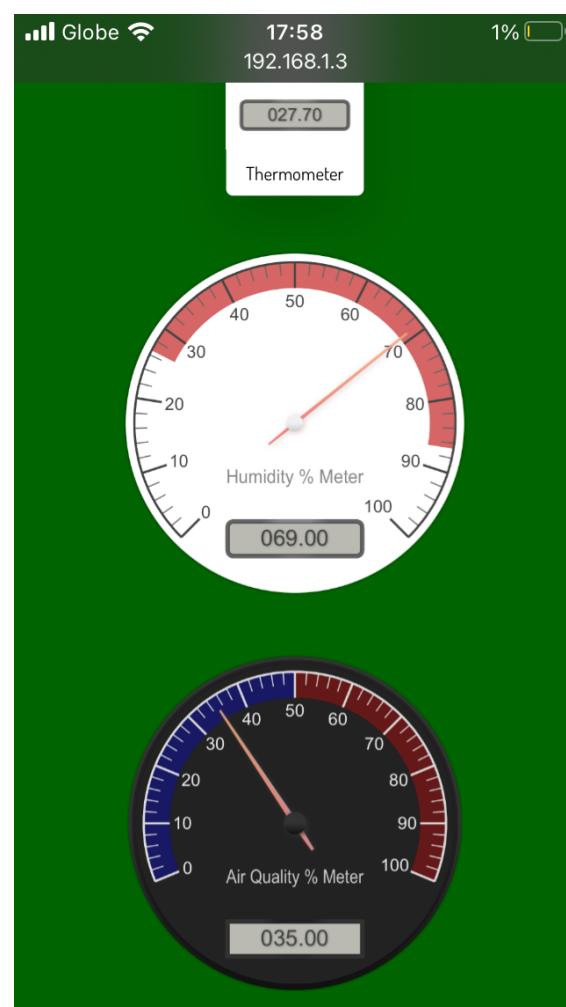


Figure No. 6: Mobile Page View (2).

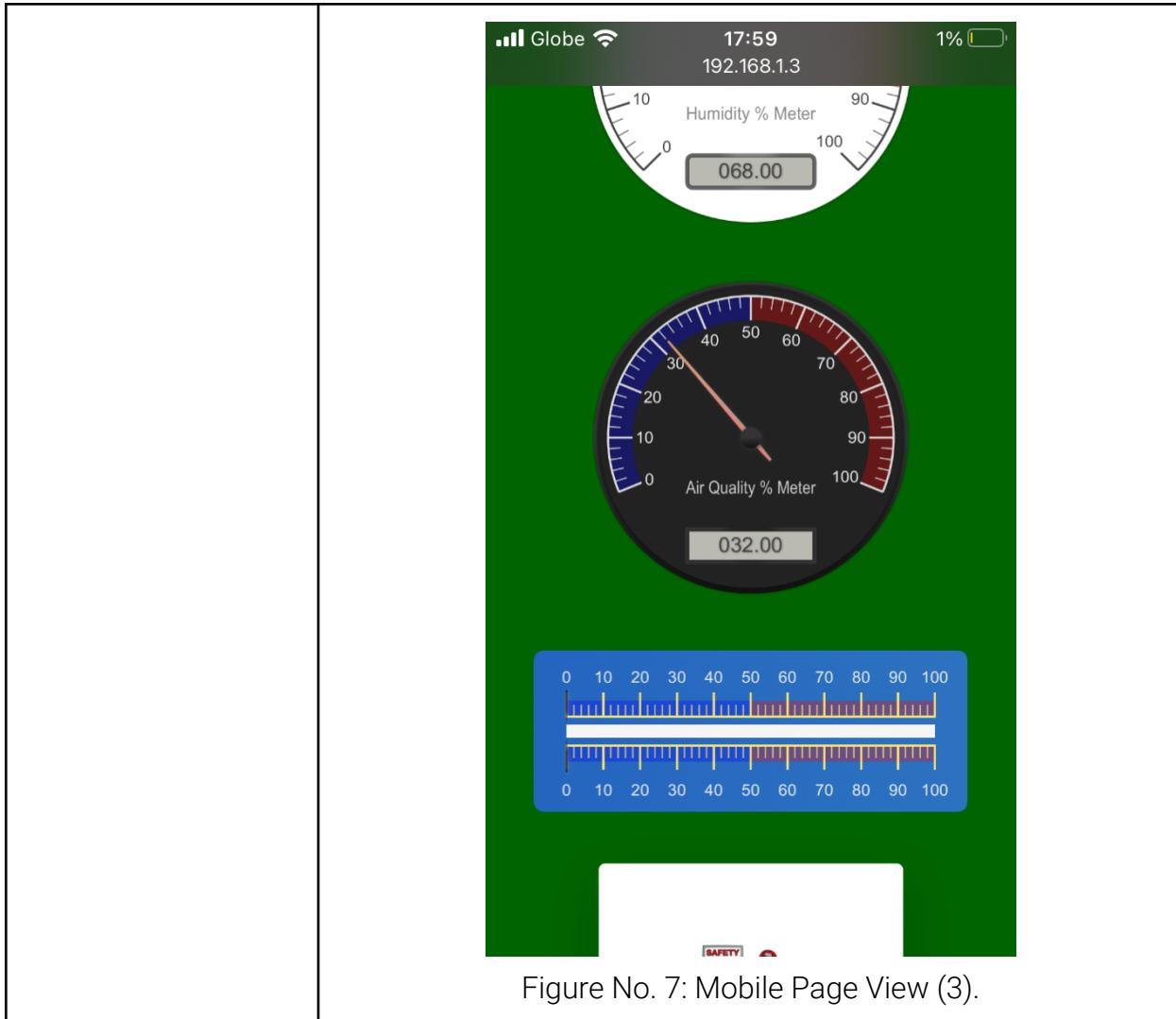


Figure No. 7: Mobile Page View (3).

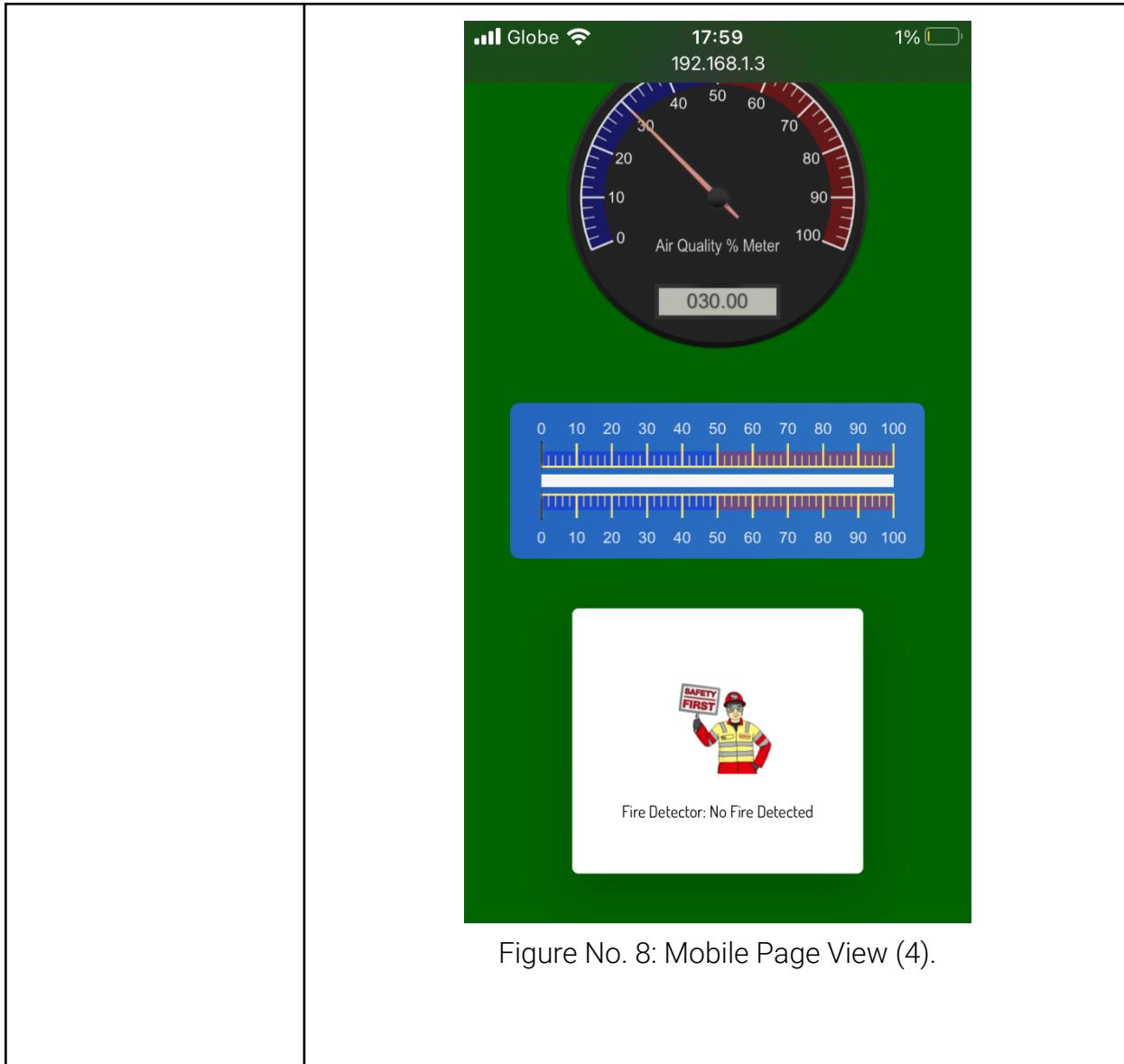


Figure No. 8: Mobile Page View (4).

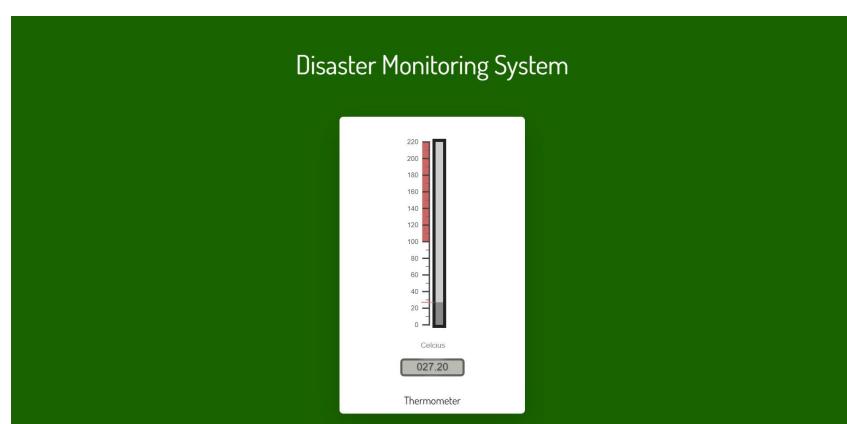


Figure No. 9: Web Page View (1).



Figure No. 10: Web Page View (2).

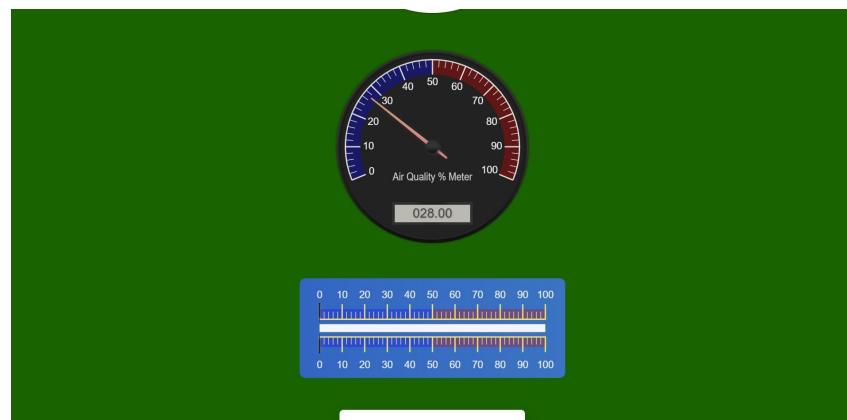


Figure No. 11: Web Page View (3).

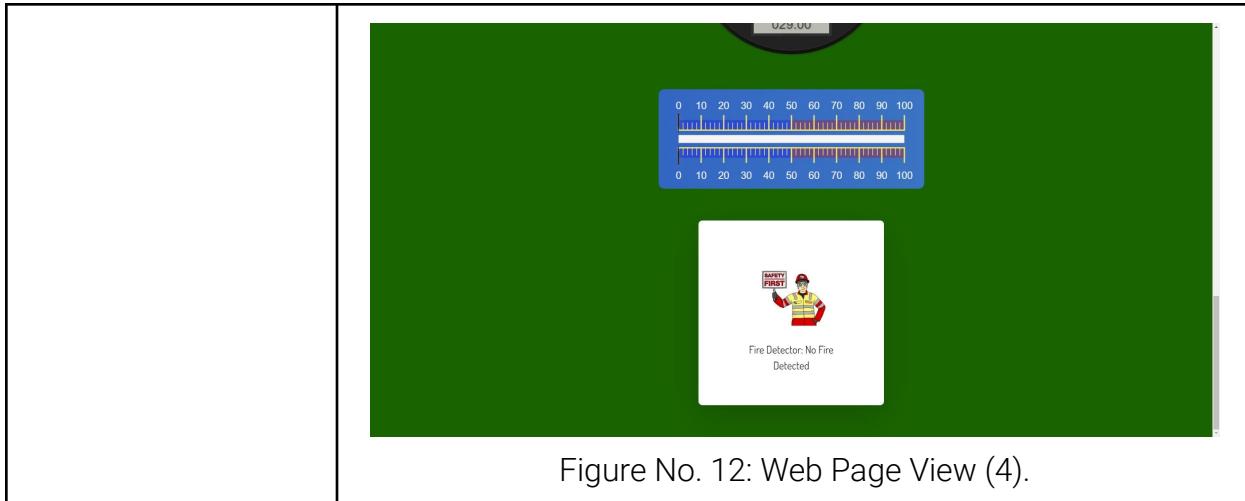


Figure No. 12: Web Page View (4).