Team EcoSense F24 17.1

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EDNS 492

Project Goal Attainment

The goals at the beginning of the semester were as follows:

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| ***Goals*** | ***Pass/Fail*** |
| Develop fully integrated environmental monitoring system device | Pass – The device will be demonstrated through a mini tutorial video. |
| Provide two iterations of the device: a non-customizable device that only works with specific sensors, and open open-source iteration open to user customization | Fail- The team failed to make two iterations of the device, but we have the schematics for all the sensor connections that can be implemented on a regular breadboard. |
| Design weather resistant enclosure to house device, sensors and power system | Pass- The team was able to create a waterproof weather resistant enclosure that protects sensors and power system. |
| Integrate a solar panel system with a portable battery bank to power the device | Pass- The team did integrate a portable battery bank to power the device with a 128Wh battery and a 25 W solar panel. |
| Functional wireless database that can communicate with device | Pass- The team was successful in creating a functional wireless database that was an SQL Server hosted on one of the team member’s personal laptop computer. The design can be further extended to online cloud storage bases in the future. |
| Sensors will be compatible with Arduino nano I/O pins | Pass- All sensors that were used in the prototype were compatible for the Arduino nano ESP32. |
| Power system will be fully functional when in direct sunlight and without direct sunlight | Pass- The device successfully remained powered on while the solar panel was in both direct and indirect sunlight. |
| Device to be compatible with O3, CO2, noise pollution, turbidity, TDS, pH, temperature, and humidity sensors | Pass- The device successfully gathered data from all the sensors that were listed on our goals for the project. |
| Device/sensors will be easily assembled | Pass- The device has been made so that it can be easily assembled, and the sensors can be simply plugged into the PCB board. |
| Parts will be commercially available and easily replaceable | Pass- All parts that were used to make the device have been confirmed to be commercially available, and easily replaceable. |
| Device can track location of device when collecting data using a GPS module | Pass- The device was working properly, and it was recording the correct location. |
| Provide Technical documentation for device assembly, safety, and proper use | Fail- The team was not able to provide comprehensive technical documentation for device assembly, safety, and proper use. |
| Provide bill of material and estimated final cost for the users | Pass- The team was able to keep track of all materials used, and provide a final cost for the users. |