Smart Weather Monitor using OLED display

Project description:

The Smart Weather Monitor is a smart, portable device that monitors real-time weather conditions with an Arduino, DHT11 sensor, and an OLED display. The project's objective is to develop a cost-effective, efficient, and portable weather monitoring system for personal and educational use.

The primary goal of this project is to develop an affordable and efficient weather monitoring system that is both portable and user-friendly. The system is designed for personal, educational, and experimental applications, making it ideal for students, hobbyists, and weather enthusiasts who seek real-time environmental data.

System Components

Arduino Microcontroller – Acts as the central processing unit, collecting and processing data from the sensor.

DHT11 Sensor – A reliable and widely used sensor that measures **temperature** and **humidity**.

OLED Display (1-inch) – Provides a **clear and readable** interface for displaying real-time weather data.

Project-related SDG (Sustainable Development Goal)

Primary SDG: SDG 13 – Climate Action
The Smart Weather Monitor with OLED Display mainly corresponds to SDG 13: Climate Action because it ensures awareness, preparedness, and adaptation towards an observed change in weather. The device ensures that people and communities make informed decisions about weather change, environmental sustainability, and disaster preparedness based on actual real-time temperature and humidity levels.

Social Impacts:

The Smart Weather Monitor with OLED Display has important social benefits, especially in climate consciousness, health, education, and sustainability. Through its real-time weather information, it enables people and communities to prepare for severe weather conditions, lessening health threats. It can be used as an educational device for students studying IoT and environmental science, fostering STEM education. Moreover, with its low power expenditure and ability to be integrated with renewable energy, it is a cost-effective and environmentally friendly option for weather observation to contribute to climate action and smart city efforts.

Team Members:

Aditya Sridhar: Hardware integration, manuscript writing, system testing, debugging, troubleshooting.

Apurba Koirala: Software development, hardware testing, code optimization, debugging, troubleshooting.

Photos: