Weather Box

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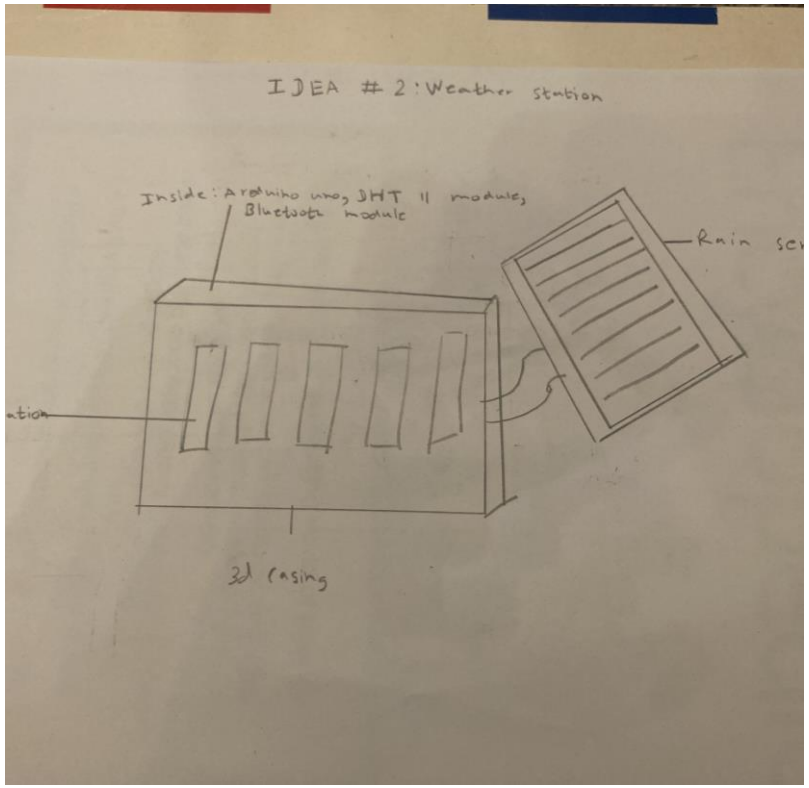
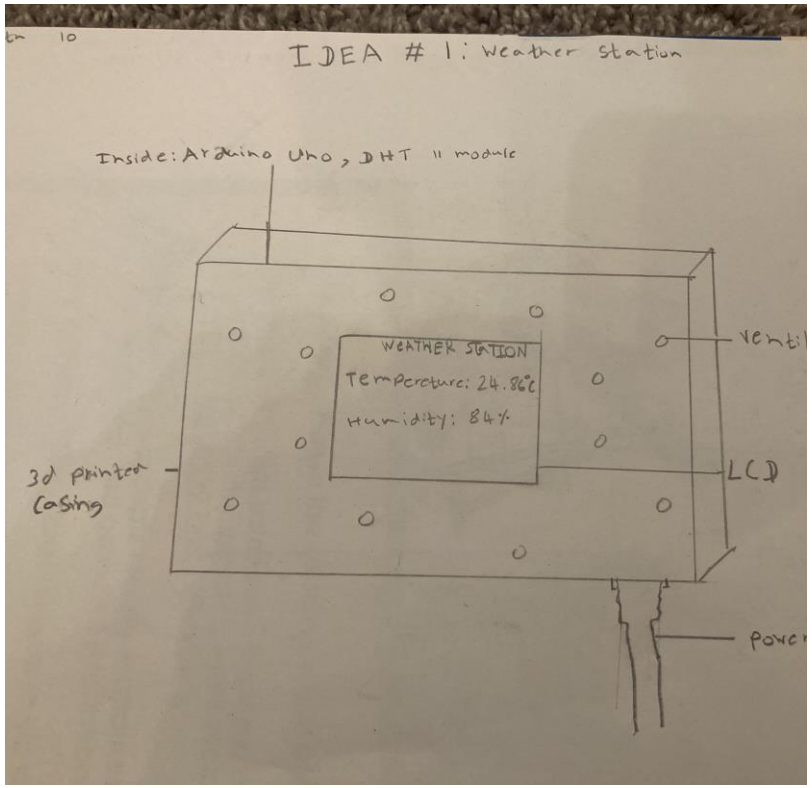
What is the Weather Box

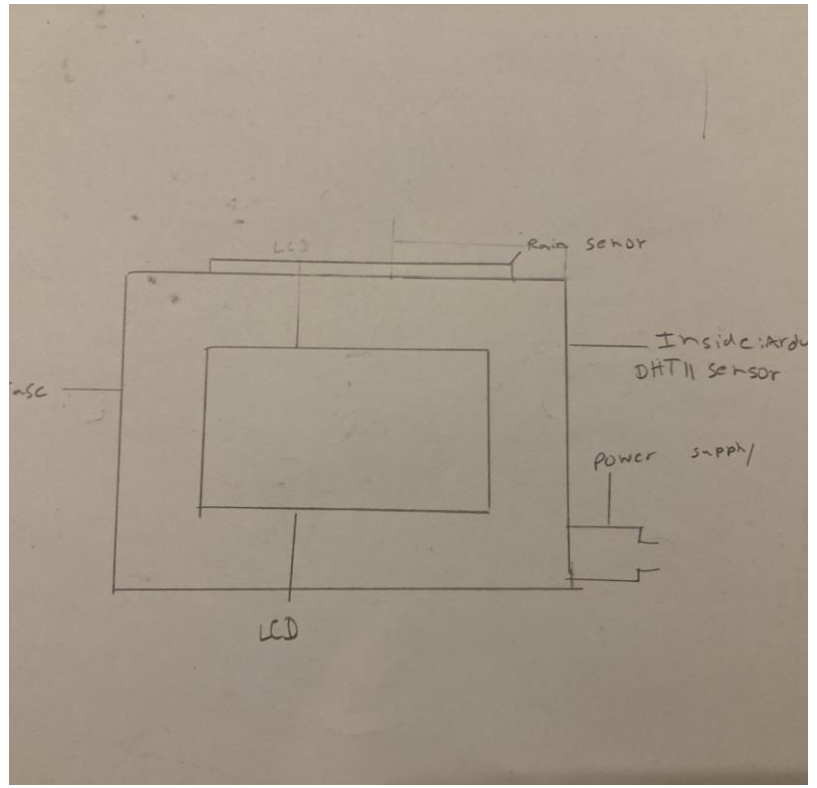
The Arduino Weather Station is a cost-effective and user-friendly solution for monitoring temperature, humidity, and rainfall. Using an Arduino Uno, DHT11 sensor, rain sensor, LCD, and Bluetooth module, the device provides real-time weather data both on a screen and via wireless transmission. It is designed for hobbyists, educators, and small-scale farmers who require local weather insights. The modular and customizable design allows for further enhancements, such as additional sensors for wind speed or solar power integration.

Why or What is the problem

- **Problem**: Need for an affordable, customizable weather monitoring system.
- **Importance**: Current solutions are often expensive or lack flexibility. Weather data is crucial for farming, education, and disaster preparedness.
- **Safety & Disaster Preparedness**: Helps track environmental changes, ensuring timely responses.
- **Outdoor Activities**: Provides insights for planning events or activities.
- **Learning Tool**: Promotes understanding of climate and technology for students.







Early Desings

Components

Final :

Arduino Uno

LCD screen

DHT11 sensor

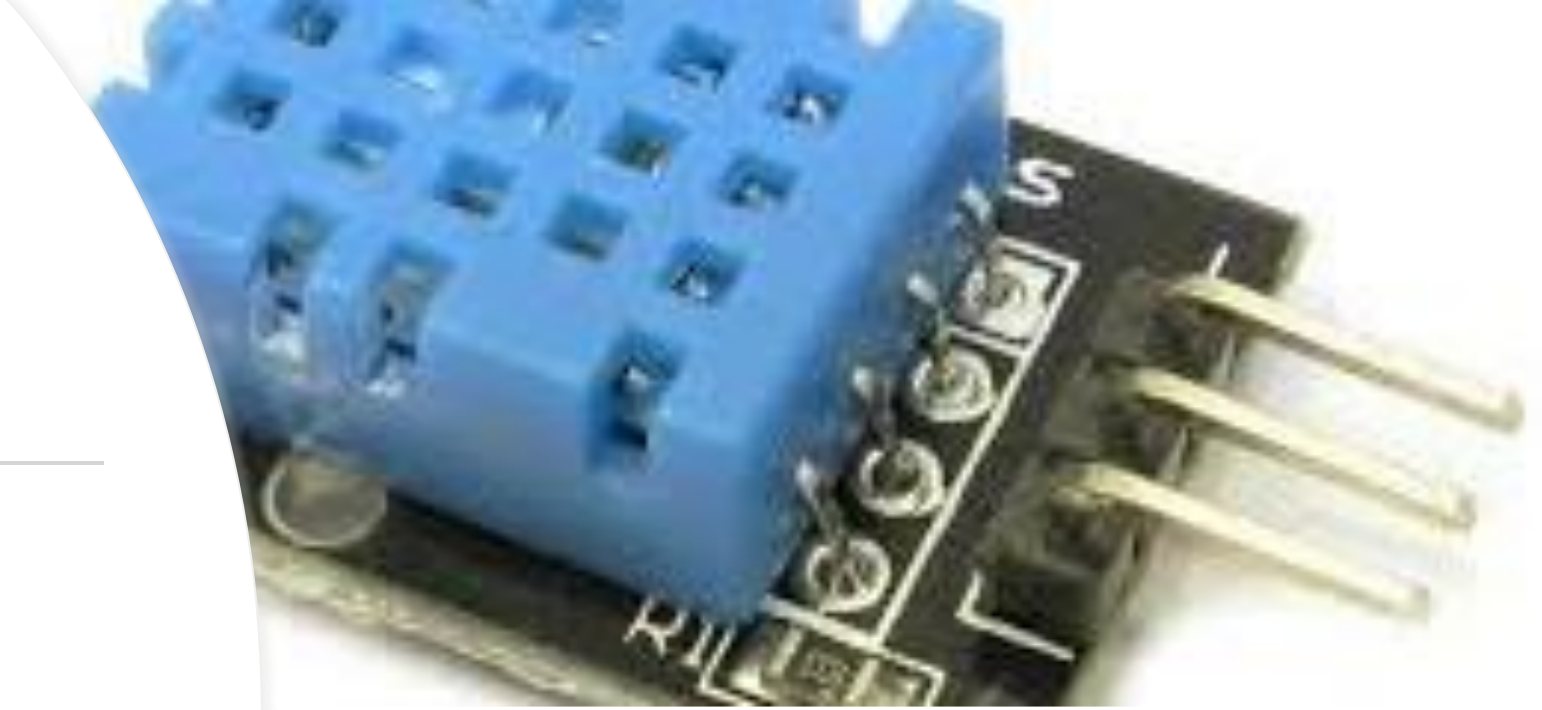
Before Changes:

Arduino Uno

LCD screen

DHT11 sensor

Rain sensor



Flow chart

- https://miro.com/welcomeonboard/K3haVXZ2MGg1RURFczA2M0lzNzE4WTMvNXFYUUpFWHR2clFvQ0NVTkFnUGNHTG5RemVxbXRHWjZjdVliV2h6WmFxZ0NHSzlaUFd4K3lFdmh6UnhSSFM1SmlWeVl3emNQVE91b3FTNjJDSU9Wc2hLVHY1SWVGWEQvTWpRS3E2MW9NakdSWkpBejJWRjJhRnhhb1UwcS9BPT0hdjE=?share_link_id=389427907296

Demo and Code

Reflection

The Arduino Weather Station, built with an Arduino Uno, DHT11 sensor, and LCD, provides an affordable, user-friendly alternative to commercial weather stations. It successfully displays temperature and humidity but has areas for improvement.

Challenges & Lessons Learned:

- **Casing Design**: Gained experience in designing and modifying a 3D printed case to house the components.
- **Sensor Integration**: Learned to code and integrate multiple sensors for a functional system.

Future Improvements:

- Enhance the casing to resist freezing and water damage.
- Add sensors like a wind speed sensor and improve power supply to support Bluetooth functionality.