

Project Proposal: Home Weather Station IoT

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1. Introduction

This project proposes the development of a basic Internet of Things (IoT) solution: a home weather station. The goal is to create a functional prototype that demonstrates the key layers of a typical IoT application, from sensor data acquisition to network transmission and final display. The system will use a Raspberry Pi with a Sense HAT to collect real-time environmental data (temperature, humidity, and pressure) and transmit it wirelessly to a separate device acting as a gateway. This solution addresses the problem of monitoring local environmental conditions in a personal or home-based setting.

2. Tools, Technologies and Equipment

- **Devices:** Raspberry Pi 4, Raspberry Pi Sense HAT
- **Programming:** Python
- **Protocols:** MQTT, TCP/IP
- **Tools:** Visual Studio Code, Public MQTT Broker (broker.hivemq.com)

Project Repository

A GitHub repository will be used for version control, to host all project code, and for final submission: [home_weather_station](#)