Project: IoT Thermometer

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Description

An IoT Thermometer will display the reading of the temperature on a LCD screen. This will be accomplished by utilizing the NodeMCU board by connecting it to the temperature and humidity sensor. This sensor will collect the temperature and humidity of the room, and we will program it to display that information on the LCD screen. The NodeMCU board will be powered via USB cable and will be programmed by using Arduino IDE. Appropriate libraries and tools will be used to program the sensor and LCD screen. The values will be shown in real-time and provide accurate results of the temperature and humidity in the room. The user can view previous temperature/humidity values in a mobile application along with the date and time recorded.

Functional Requirements

- Users will be able to see prior humidity and temperature values.
- The humidity values will be recorded and displayed on a mobile application and in a database.
- The LCD screen will display the temperature.
- The thermostat displays the correct temperature/humidity levels.

Non-Functional Requirements

- Performance
    - Ensure that the sensor is not obstructed or unable to measure the data.
- Reliability
    - Ensure a strong connection between the NodeMCU and the temperature sensor at all times.
    - Ensure the connection between the NodeMCU and the mobile application / database is strong.
    - The thermometer will function under extreme conditions.
    - We will use an SQL database to store temperature/humidity data.
- Responsiveness
    - The LCD screen will update every 5 seconds.
- Availability
    - The temperatures will be recorded and logged on a mobile application and in a database.