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Assignment No. 6 27

Title: Understanding connectivity of Raspberry-Pi board circuit with temperature sensor. Write an application to read environment temperature. If temperature crosses a threshold value, the application is indicated using LEDs.

Aim/Objectives:
- To understand concept of Temperature-Humidity sensor (DHT11).
- To interface temperature humidity sensor with Raspberry pi model.
- To program Raspberry pi model to measure real-time temperature & humidity.

Software:
Raspbian OS (IDLE) / Tinkercad

Hardware Module:
- Raspberry pi module
- Temperature - humidity sensor module
- Monitor

Theory:
- Physical quantities like temperature, humidity pressure etc. are monitored to get information about environmental conditions.
- Temperature is the amount of heat present in environment. Humidity is presence of water vapors in air. The temperature & amount of water processes in industries. The presence of water vapor also influences various physic

chemical & biological processes.
- In our module we are using "DHT11 temperature & humidity sensor." The reliability & excellent - long term stability.
- This sensor has a resistive - type humidity measurement component in the resistivity of semiconductor material changes as per humidity in environment changes.
- This sensor also includes NTC temperature measurement component which detects change in temperature.
- DHT11 basically provides two outputs from single data pin semiconductor material.

Steps for assembling circuit:
- Connect power pin of Temperature sensor to 5V pin of Arduino uno r3.
- Connect the Vout pin of temperature sensor to A2 pin of Arduino uno r3.
- Conned the GND pin of temperature sensor to GND pin of Arduino uno r3.
- Connect Cathode pin of LEDs RGB to GND pin of Arduino uno r3.
- Connect green pin of LEDs RGB to 13 pin of Arduino uno r3.
- Connect positive terminal pin of piezo to GND of Arduino uno r3.
- Connect negative terminal pin of piezo to 12 pin of Arduino uno r3.

Observation:
Observe ON & OFF status of the LEDs RGB & generate using tone.

Conclusion:
We successfully learnt about connectivity of Raspberry Pi board circuit with temperature sensor and also read environment temperature. If temperature crosses a threshold value, application is indicated using LEDs.