Year 9 IoT Project

Raspberry Pi Pico Temperature Multi Alert System (RPPTMAS)

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Github Link

https://github.com/CGS-Alex-A/RPPTMAS

The following headings can be answered with text, imagery, charts, photos, videos etc.

Try to use as many of the above options in your answers as possible.

Step 1: Inquiring and Analysing

Analyse existing products

We took inspiration from thermometers that send info to smart phones and decided to upgrade the design by making it have an alarm system and lights while keeping the entire design on one device to prevent issues with security breaches and internet. This makes our device a discrete and simple device to alert users when the temperature could be unpleasant or too extreme to be in.

Develop a Design Brief

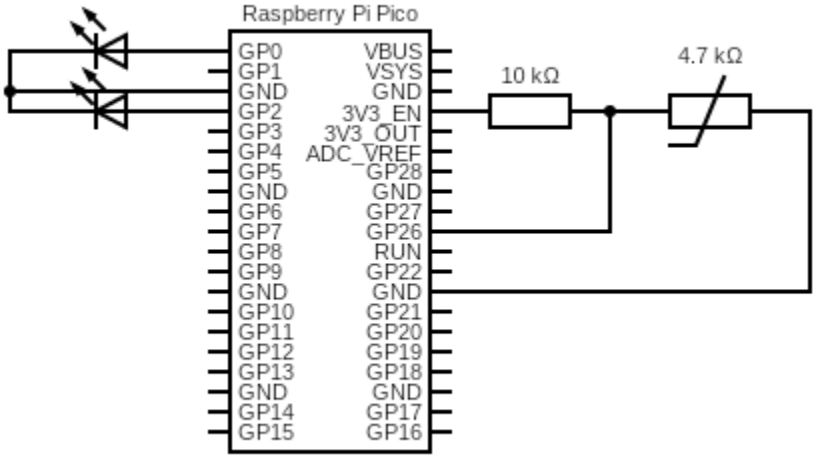
A buzzer plays a higher pitch and buzzes faster according to the temperature. It goes faster if the temperature higher, and it buzzes slower/louder when the temperature is lower. There is a red light if it is hotter and a blue light if it is colder.

Step 2: Developing Ideas

Develop a Design Specification

The RPPTMAS aims to help people know what the temperature is by using micro python code on a Pi Pico so it can use two types of alerts, lights and sound. The hardware used is a Pi Pico, 3 wires, a buzzer, one red led, one blue led, thermistor, resistor, and a breadboard.

Develop planning drawings or diagrams



Step 3: Creating the Solution

Construct a logical plan

Materials: breadboard, raspberry pi pico w, 5 wires, 1 led, 1 thermistor, 1 resistor, 1 buzzer

Put the raspberry pi pico w in breadboard pins c1 and h1 with the top of the pico facing upwards

Put the led in breadboard pin a1 a2 a3 a4

Put resister in breadboard pin c22 c24

Put thermistor in e24 e25

Put buzzer in g21 g24

Put a wire in j5 a22

Put a wire in j10 b24

Put a wire in a5 g21

Put a wire in j18 g24

Put a wire in a18 a25

Follow the plan to make the solution

We followed the plan but we original were using two LEDs and we changed it to only one LED.

Justify changes made to the plan

The LED we replaced it with could shine multiple colors and was one LED which made the hardware simpler. Simpler hardware also results in cheaper costs and easier understanding of what the Multi Alert System does

Step 4: Evaluation

Evaluate the success of the solution

The soultion is effective and works as expected

Explain how the solution could be improved

The solution could be improved by making it connect to other devices and give notifications to your phone or you could add more sensors like humidity or smoke

Step 5: Reference List

Halvorsen, H. (n.d.). Raspberry Pi Pico and Thermistor Temperature Sensor.

https://halvorsen.blog/documents/technology/iot/pico/pico_thermisor.php