**REPORT**

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A Raspberry Pi is a small, affordable, single-board computer that was initially developed by the Raspberry Pi Foundation in the UK. The Raspberry Pi is about the size of a credit card and consists of a printed circuit board that includes a central processing unit (CPU), memory (RAM), input/output ports (USB, HDMI, GPIO), and various other components necessary for its functionality. Raspberry Pi can be used to create devices that connect to the internet and interact with other devices.

**SENSOR DESCRIPTION:**

The HC-SR04 ultrasonic sensor is an affordable and popular module used for distance measurement and object detection. It operates on a 5V supply voltage and emits ultrasonic waves at a frequency of approximately 40 kHz, which is above the human hearing range. The sensor can measure distances in the range of 2 cm to 400 cm with a resolution of about 1 cm. It works by emitting an ultrasonic pulse and measuring the time it takes for the pulse to bounce off an object and return to the sensor.

**PROCESS:**

We connected the ultrasonic sensor to the Raspberry Pi in the following way:

* Connect the VCC pin of the sensor to a 5V pin on the Raspberry Pi.
* Connect the GND pin of the sensor to a ground pin on the Raspberry Pi.
* Connect the Trig pin of the sensor to GPIO pin (e.g., GPIO17) on the Raspberry Pi.
* Connect the Echo pin of the sensor to GPIO pin (e.g., GPIO18) on the Raspberry Pi.

Firebase Setup

Create a Firebase project and set up a Realtime Database and obtain the Firebase service account credentials in JSON format.

Running the file: python RasPi.py