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Poza:

Hackster.io link for project:

https://www.hackster.io/maria-gabrielacaia/monitoring-the-distance-on-a-web-interface-with-rpi-4b8c67

Github link for the code:

https://github.com/gabrielacaia/SM_Project

Youtube link for demo:

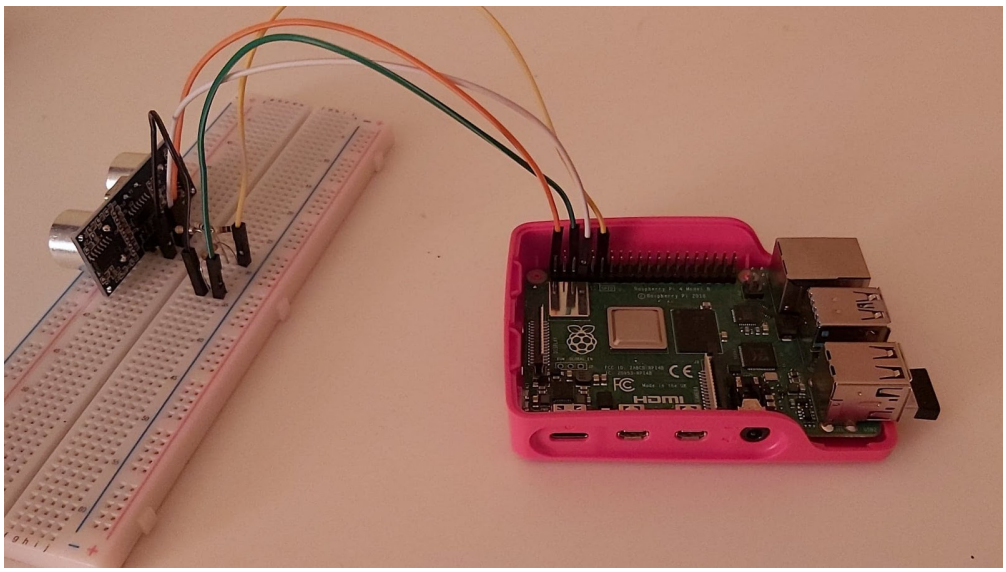
https://www.youtube.com/watch?v=EYZIQ6rZj5g&feature=youtu.be

Project name: Monitoring the distance on a web interface with RPI

Elevator Pitch:

This project demonstrates how to use RPI 4 Model B and HC-SR04 sensor to read the distance and dynamically display it on a website.

Cover image



Story

This project aims to display in real time the distance measured using the HC-SR04 ultrasound sensor on a web interface hosted by the Apache server.

Required hardware and software

- Raspberry Pi with Raspbian
- HC-SR04 ultrasonic distance sensor
- 3x 1kΩ Resistors (or 1x1kΩ 1x2kΩ)
- Cables
- Apache
- RPi.GPIO Python library

Sensor software

Before we get started with writing code, we will need to install RPi.GPIO:

```
pip3 install RPi.GPIO
```

We will use the python3 program available on the github link.

To install and enable Apache on Raspberry Pi do the following:

```
sudo apt update
```

```
sudo apt install apache2 -y
```

To get the default Apache index.html page use the command:

```
curl localhost
```

Website

For the web page we will use HTML markup language, CSS language and Javascript to dynamically load the data read from the sensor.

Retrieving sensor data

We are using AJAX, which is a component of the jQuery library used for dynamic requests and refreshing data without having to reload the page.
Our function get_data simply makes a request to ```/data.txt```, which is the directory with our sensor data. The ```setTimeout``` construct sets an interval defined earlier (100ms), after which the entire function logic is repeated.

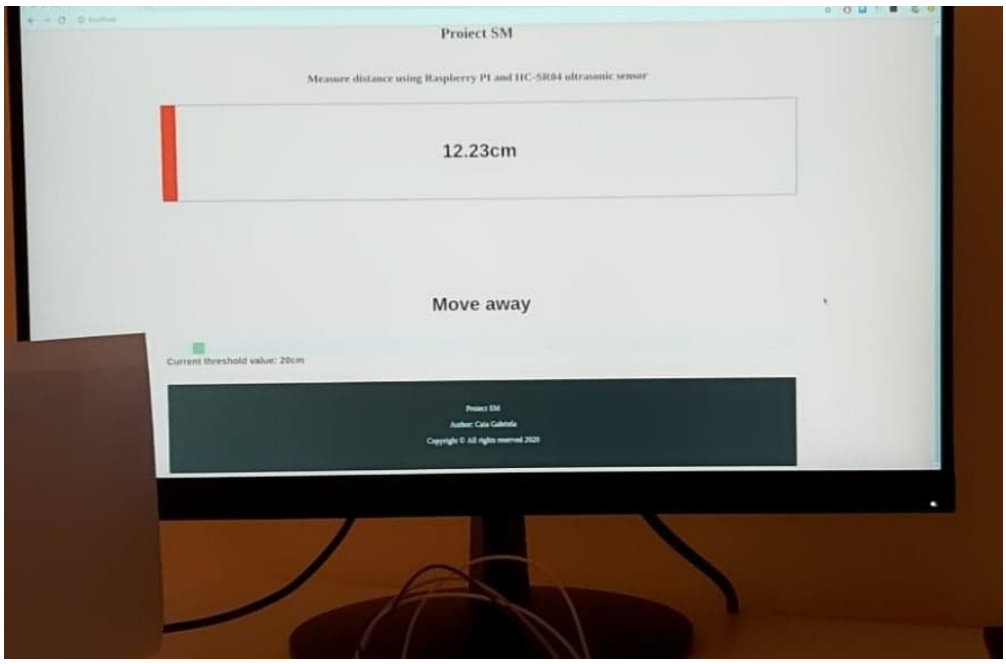
Displaying the data

We will quickly style it, so that the data is nicely presented to the user (css is moved to external files at the end).
We will now need to write some Javascript code that will change the length of the progress-bar-fill div.

On your RPi, run the python script reading sensor data. In the directory where your script is located run:

```
sudo python3 script.py
```

Now you can open the website on your computer - open a web browser and go to *http://your_device_name/get.html*.



Components and apps

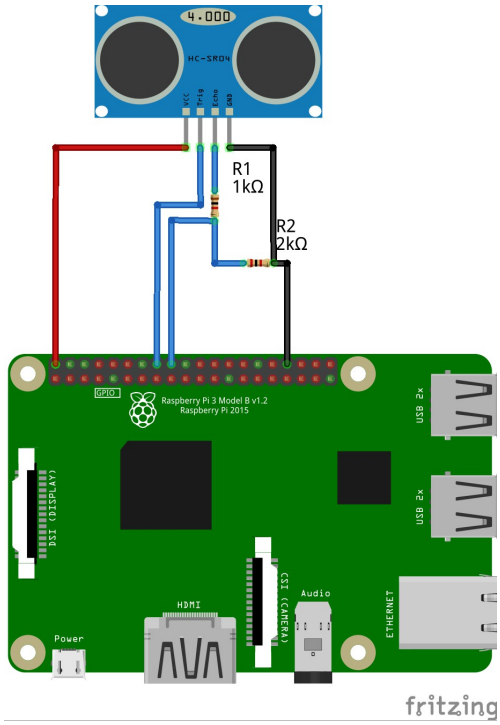
- **Hardware components**

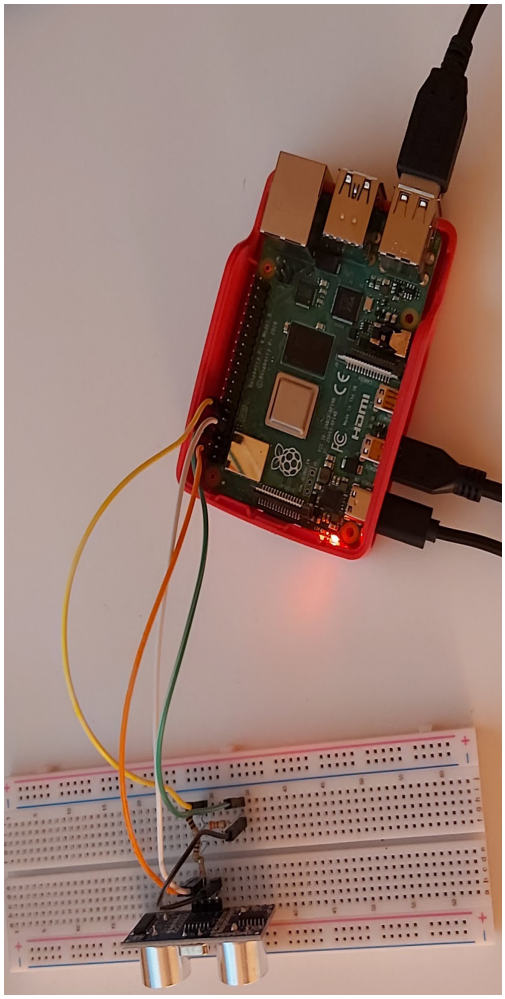
- Raspberry Pi 4 Model B
- Ultrasonic Sensor - HC-SR04
- Breadboard
- Resistor 1k ohm
- Resistor 2.21k ohm
- Cables

- **Software apps and online services**

- Raspberry Pi Raspbian
- Python 3
- Javascript
- HTML
- CSS
- GPIO library
- Apache

Schematics





Code : https://github.com/gabrielacaia/SM_Project