SUP'COM
Higher School of Communication of Tunis

User Guide Iot

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I. Introduction

The IoT Par is a system that utilizes an ultrasonic sensor and a camera connected to a Raspberry Pi to measure distances and capture images. The system leverages the MQTT protocol to send distance measurements to a specified broker.

The camera flow is controlled via Node-RED, where captured images are processed by a trained model, converted to base64, and then transmitted to the MQTT broker hosted on a VM through a WebSocket connection.

II. Installation

- **Hardware Setup:**
  - Connect the ultrasonic sensor to the GPIO pins of the Raspberry Pi.
    - GPIO TRIG pin (Trigger) to GPIO pin 7.
    - GPIO ECHO pin (Echo) to GPIO pin 11.
  - Connect any additional hardware, like a camera, to the Raspberry Pi as needed.
- **Software Installation:**
  - Ensure that Python is installed on your Raspberry Pi.
  - Install the required Python libraries using the following command:

```
pip install RPi.GPIO paho-mqtt
```

III. Usage

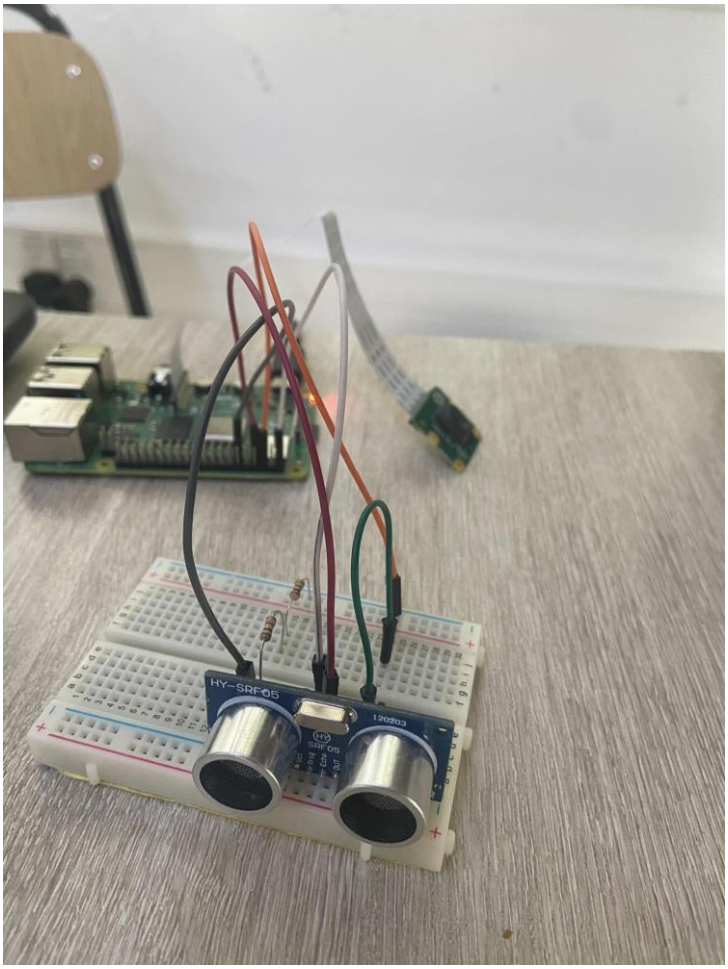
- Launch Python Code:
  - Open a terminal on your Raspberry Pi.
  - Navigate to the directory where the send.py code is saved.
  - Run the following command to launch the code:

```
python send.py
```

- Make sure that the Vm is up and running and mosquitto broker is functionnal .

```
Sudo systemctl start mosquitto

Sudo systemctl status mosquitto
```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