

# SensorSpy GUI

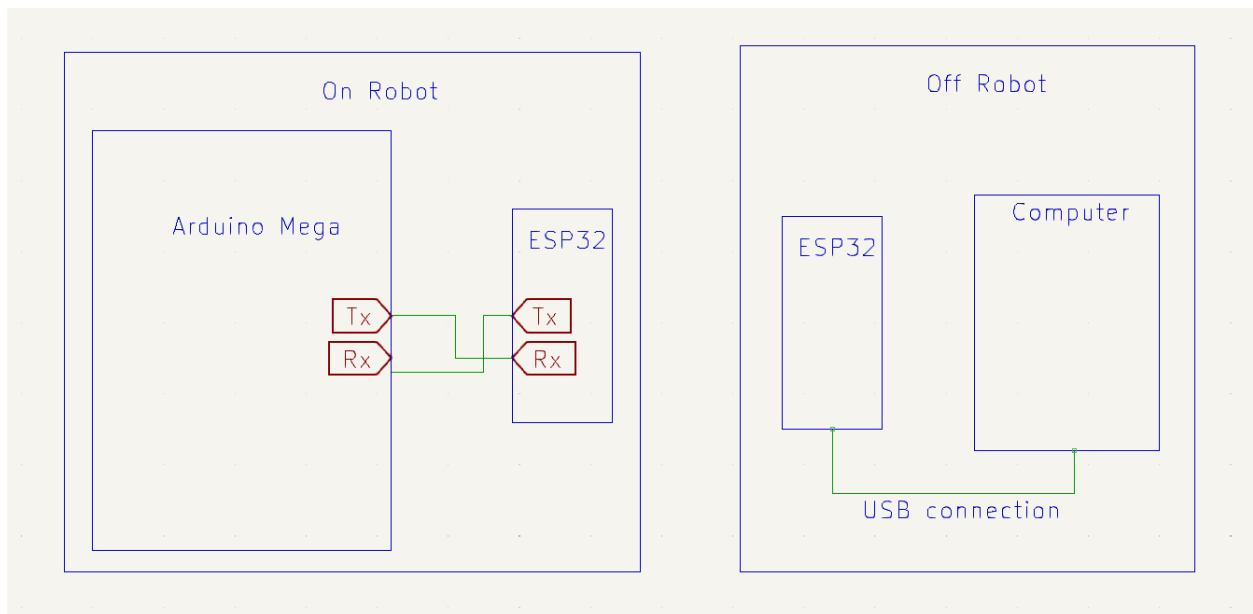
## General Description

The SensorSpy user interface acts as a proof of concept that all sensors are reading valid data. This subsystem was used and created for the minimal prototype design to show that all navigation sensors were acting as expected. The GUI uses an on-robot ESP32 to transmit data to a receiving ESP32 which is connected to the user's computer.

## Equipment, Parts, Software Used

ESP32 (x2)	<a href="#">Adafruit HUZZAH32 – ESP32 Feather Board : ID 3405 : \$19.95 : Adafruit Industries, Unique &amp; fun DIY electronics and kits</a>
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## Schematic



## Logic, General Notes, Reasonings

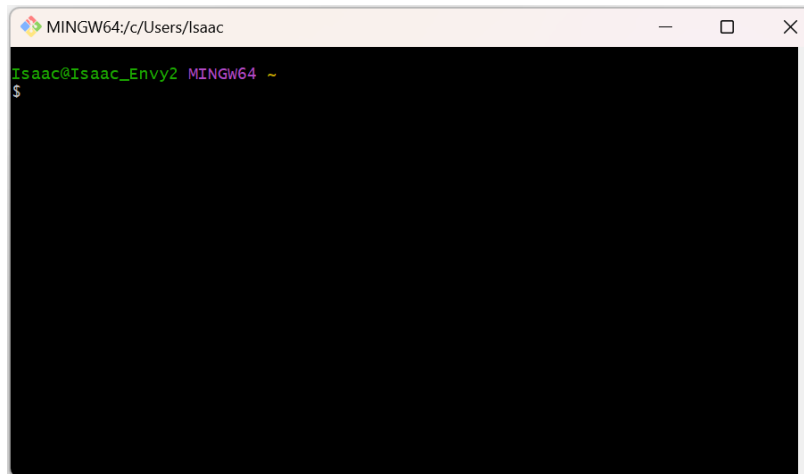
The GUI was created using PYQT5 and designer. A useful video learning these tools is found here: [PyQT5 Designer Drag and Drop GUI - PyQt5 GUI Thursdays #6 \(youtube.com\)](#). To run the GUI, run it like you would any other python file. It was created using the VS code IDE. A virtual

environment may be necessary to download all needed dependencies. This is also discussed in the video series linked above.

## Adding A Sensor To Display

### 1) Start Virtual Environment

A) Open GitBash Terminal:



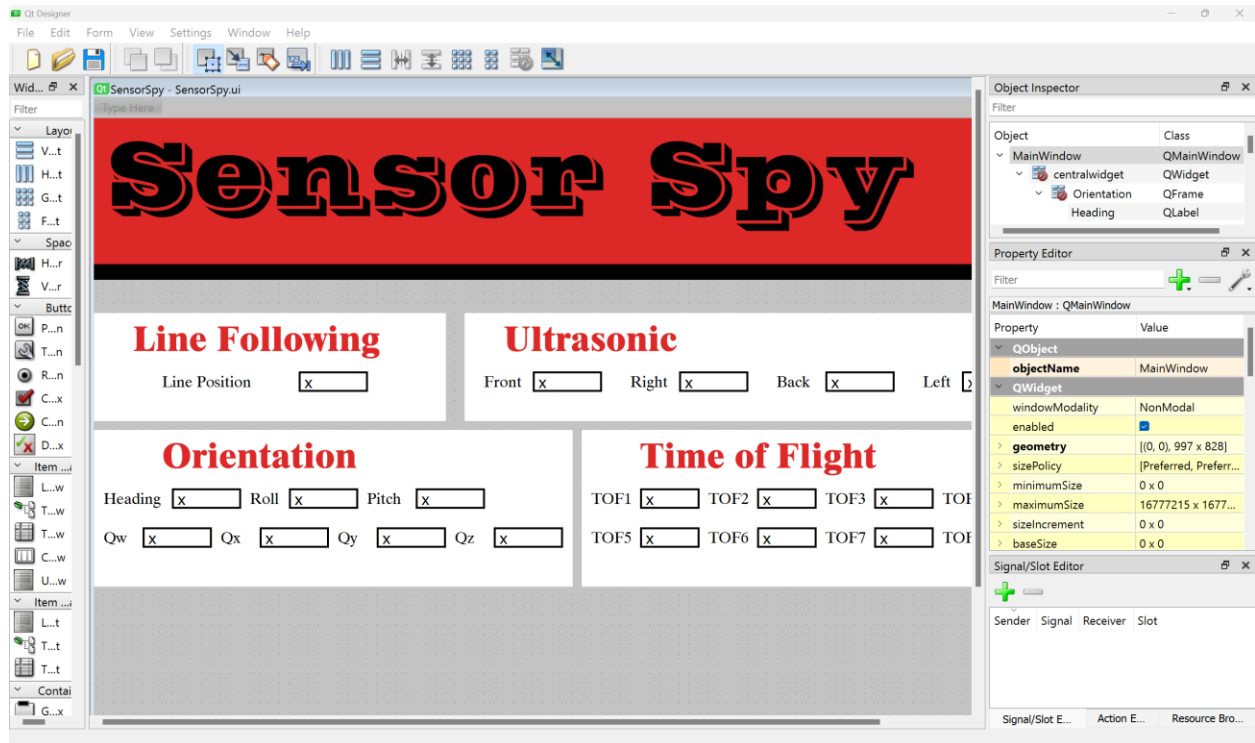
B) Start Virtual Environment:

a) First you must enter the directory where the virtual environment and code are stored.

b) Turn on the virtual machine with the command line below. (virt) should appear when the environment is turned on.

```
Isaac@Isaac_Envy2 MINGW64 /C/capGUI
$ source virt/Scripts/activate
(virt)
Isaac@Isaac_Envy2 MINGW64 /C/capGUI
$
```

c) type “designer” into the gitbash terminal and load in sensorspy.ui, showing this screen:



d) add in a textbox and format as you like.

e) Generate the .ui file by typing “puic5 -x SensorSpy.ui GUI.py”. The .ui file will generate a python file called GUI.py.

## IMPORTANT NOTES WHEN USING ESP 32

- The Arduino Mega will not allow you to upload code when the Tx/Rx pins are connected to the ESP32. Every time you upload new code to the Arduino Mega, you must disconnect the ESP32.
- If the driver for the ESP32 does not work on your computer, you must download the Silicon Labs Virtual COM Port (VCP) driver for Windows.