**4IR sensor node document**

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# Introduction

## What is it

The 4IR sensor node is a sensor set mainly composed of a PCB with 4 IR sensors VL53L1X, a microprocessor and a micro USB output. This node is tested to be used in the EDUCAT Project which consists in developing a smart wheelchair for people with reduced mobility.

## General functioning

![Une image contenant texte

Description générée automatiquement]()The node work through an USB connection with his micro USB port. Once the node is supplied by the USB connection, he does not send any data until he receives the string data ‘1’. Then, the node send data as explained below until he receives the string data ‘0’ to come back to the first state. Here is an image of example data received from the node.

Each data is 1 line of string, ending with ‘\r\n’. The letter b at the beginning means that strings are encoded. Each data received from the node contains several data separate by a comma as follow: ‘ID,error\_code,distance,,\r\n’. As the node is composed of 4 IR sensors, the ID allow to know which sensor the data comes from. The error code gives an idea of the relevance of the sensor data (this is explained in a separate part). Finally, the distance is the real data coming from the sensor.

## Error code

-------------------- EMPTY PART -------------------

## Use of the node

In order to collect and process data from the node, a python library has been created and is available for download with pip (“pip install irsensors”). If for any reason you can not use it, you also have the possibility of created your own program in any language which allows you to read data from USB port.

# Performance test