# EE536: Project Proposal

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**Name of the project** : BlueControl

**Team Members** : Sandeep N Kundalwal (T22051) & Mahima Gupta (T22055)

**Short Description** : Sending SCPI commands from a basic computer unit to scientific devices via Raspberry Pi. Commands will be sent from the computer unit to Raspberry Pi through bluetooth.

**Required Component**s :

Raspberry Pi 3 B+ & Power Adapter
500 MHz / 1 GHz Oscilloscope
PLC Counter / (Voltage Sensor + Analog to Digital Converter) / Digital Multimeter
Ethernet Cable + USB Cable(s)
Jumper Wires
Breadboard
Laptop / Arduino Uno (with bluetooth board)

**Solution Details**:

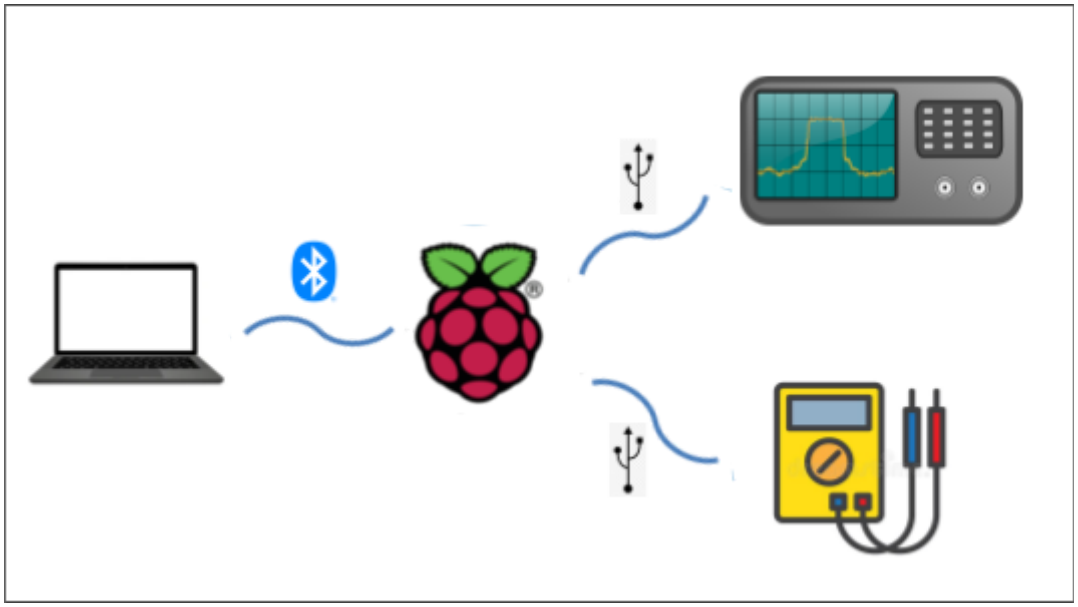

*Figure 1 : Graphical Representation of the System*

➔ Library for sending scpi commands to instruments from Rpi - **PyVISA (https://pypi.org/project/PyVISA-py/)**

➔ Library for sending scpi commands from laptop to Rpi using Bluetooth - **PyBluez (https://pypi.org/project/PyBluez/)**

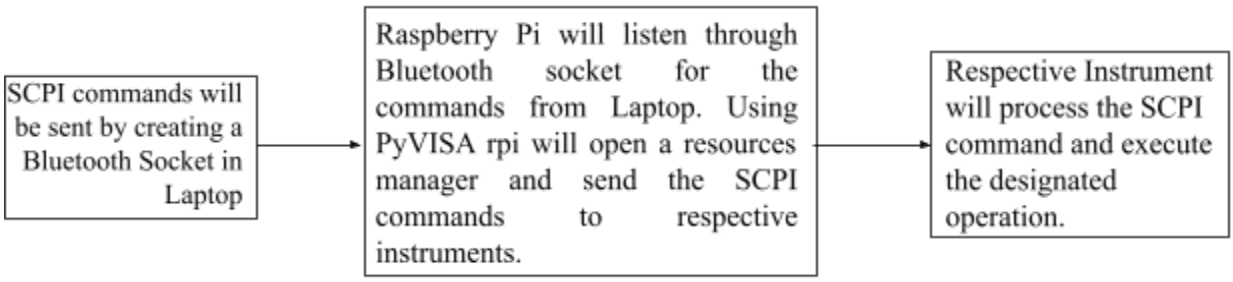


*Figure 1: Data Flow Chart depicting the flow of scpi commands from laptop to devices.*

- `SCPI_Write(scpi_t* context, const char* data, size_t len)`
- `SCPI_Flush(scpi_t* context)`
- `SCPI_Error(scpi_t* context, int_fast16_t err)`
- `SCPI_Control(scpi_t* context, scpi_ctrl_name_t ctrl, scpi_reg_val_t val)`
- `SCPI_Reset(scpi_t* context)`

*Figure 2 : List of SCPI commands that can be used for this project*

*(Reference : https://hackaday.com/2021/11/17/scpi-on-teaching-your-devices-the-lingua-franca-of-laboratories/)*

**Plan to use sensors** : No (But might use voltage sensor, if required)

**Milestone 1** : 9th May, 2023

Send scpi commands from a Laptop to the Raspberry Pi via Bluetooth Interface.

**Milestone 2** : 16th May, 2023

Send scpi commands from a Laptop to two devices through Rpi.