

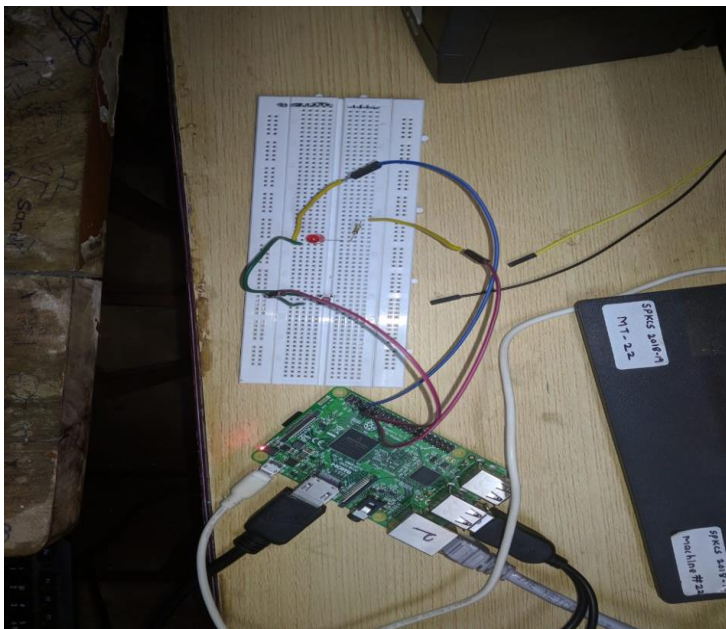
Practical No. 6

Aim: Setup a TCP server and client on a raspberry pi using Python modules to send messages and execute shell commands from within python such as starting another application

Step 1: Install socket

```
pi@raspberrypi:~$ sudo apt-get install socket
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following NEW packages will be installed:
  socket
0 upgraded, 1 newly installed, 0 to remove and 205 not upgraded.
Need to get 15.7 kB of archives.
After this operation, 58.4 kB of additional disk space will be used.
Get:1 http://mirror.ossplanet.net/raspbian/raspbian buster/main armhf socket armhf 1.1-10 [15.7 kB]
Fetched 15.7 kB in 1s (11.4 kB/s)
Selecting previously unselected package socket.
(Reading database ... 152986 files and directories currently installed.)
Preparing to unpack .../socket_1.1-10_armhf.deb ...
Unpacking socket (1.1-10) ...
```

Step 2: connect led to breadboard and boot raspberry



Step 3: Setup TCP server and run the script

```
*tcp_server.py - I:\pract6\tcp_server.py (3.7.3)*
File Edit Format Run Options Window Help
import socket
import RPi.GPIO as GPIO
import time

GPIO.setmode(GPIO.BOARD)
GPIO.setup(11,GPIO.OUT)
GPIO.setwarnings(False)

UDP_IP='192.168.0.80'#server ip address
UDP_PORT=5007
sock = socket.socket(socket.AF_INET,socket.SOCK_DGRAM)
sock.bind((UDP_IP,UDP_PORT))

while True:
    data,addr = sock.recvfrom(1024)
    d = int(data)
    if d==1:
        GPIO.output(11,GPIO.HIGH)
    elif d==0:
        GPIO.output(11,GPIO.LOW)

    print("Receiver Message : ",data)
```

Step 4: Setup TCP client and run the script

```
*tcp_client.py - I:\pract6\tcp_client.py (3.7.3)*
File Edit Format Run Options Window Help
import socket
sock=socket.socket(socket.AF_INET,socket.SOCK_DGRAM)

UDP_IP='192.168.0.80'#server ip address
UDP_PORT=5007

while True:
    number=int(input("Enter num :"))
    sock.sendto(str(number).encode('UTF-8'), (UDP_IP,UDP_PORT))
    if number>1:
        break
```

Step 5: send input to the server

```
Shell
Python 3.7.3 (/usr/bin/python3)
>>> %cd /home/pi/Downloads
>>> %Run tcp_client.py
Enter num :1
Enter num :0
Enter num :1
Enter num :0
Enter num :
```

Step 6: view output

