CSE461

Lab 1

Interfacing and LED with Raspberry Pi Along with Push Button switch.

Name : Ashakuzzaman Odree

ID : 20301268

Section : 08

Group : 05

Objective:

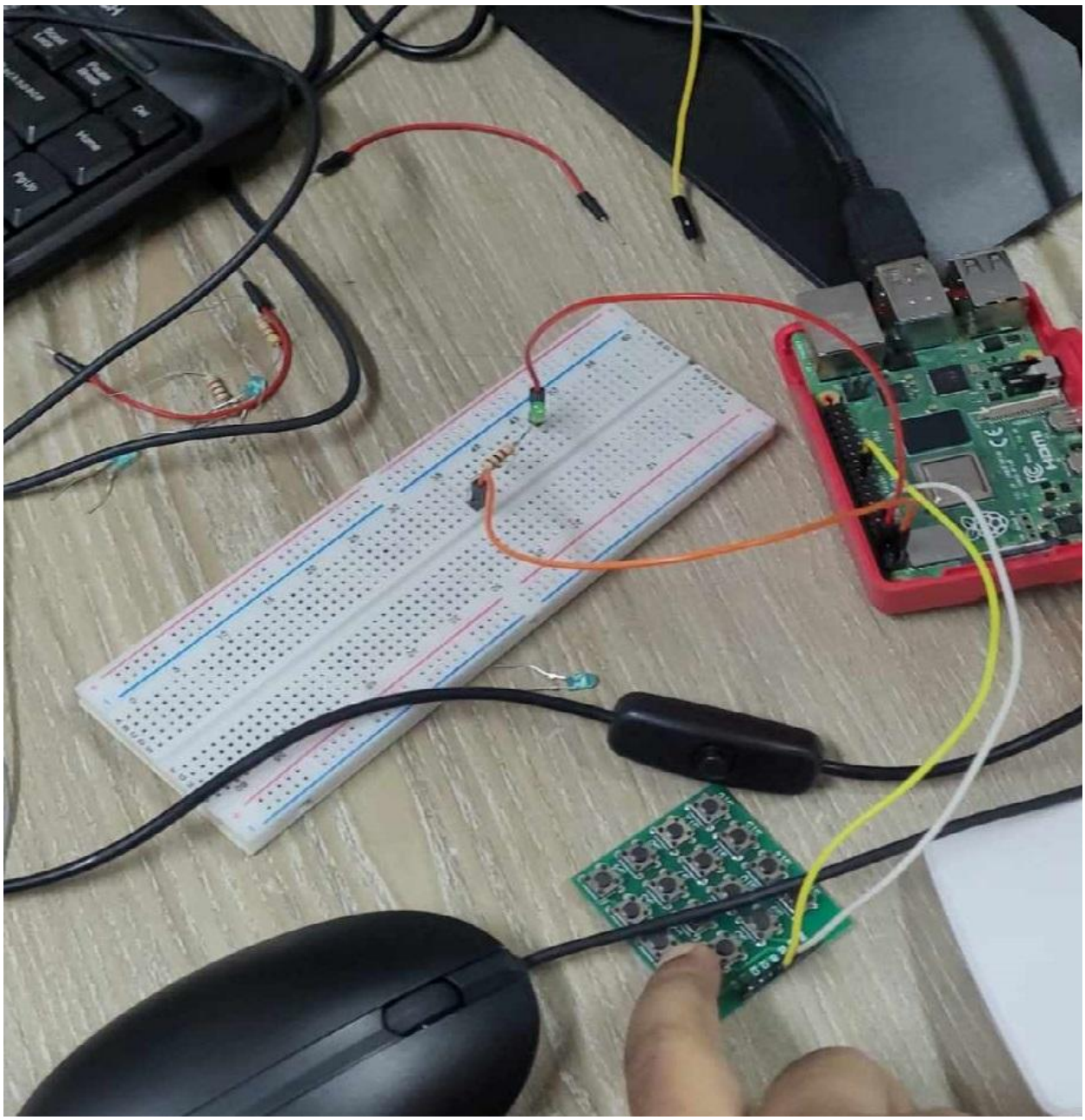
Using Raspberry Pi to implement 1 LED using the given circuit and getting a basic idea of the GPIO pins, how to configure LED, and push buttons.

Components required for the setup:

For controlling the LED with a push button on the Raspberry Pi 4, we need the following electronic components:

- Raspberry Pi 4
- LED
- A resistor of 220 ohms
- Push-button
- Connecting wires (female to male)

Experimental setup:



Code:

```
import RPi.GPIO as GPIO
import time
GPIO. setmode (GPIO. BOARD)
GPIO, setup(23,GPI0.IN, pull_up_down = GPIO. PUD_UP)
GPIO, setup(3,GPI0.OUT)

while True:
    if GPIO.input(23) == 0:
        Print(‘'Button is pressed!’)
        GPIO. output(3, True)
        time.sleep(0.1)

    else:
        print( ‘Not pressed’)
        GPIO.output (3, False)
        time.sleep(0. 1)
```

Results:

After finishing the whole connection, entering the code, and running it, the LED lights on when we push and hold the switch, and it continues to light up as long as the switch is held down. The LED goes dark when the switch is released, and it turns on again when it is pressed again. As a result, the light-emitting diode (LED) remains lit just for as long as the switch is depressed; hence, it is safe to say that the experiment was a success.

Discussion:

Through the completion of this project, we were able to get an understanding of the fundamental applications of the GPIO pins, as well as how to set up and operate the GPIO pins on the raspberry pi using software tools and the programming language Python. One of the problems that arose was that the Raspberry Pi itself could not be started, and it was subsequently determined that the problem was caused by a malfunctioning HDMI converter. In addition, it was challenging to learn the pins because of their small size, which made it easy for them to be misunderstood.