

MINI PROJECT MEMORY GAME & BINARY TO GRAY CODE CONVERTER

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MINI PROJECT : (PART - 2)

MEMORY GAME :

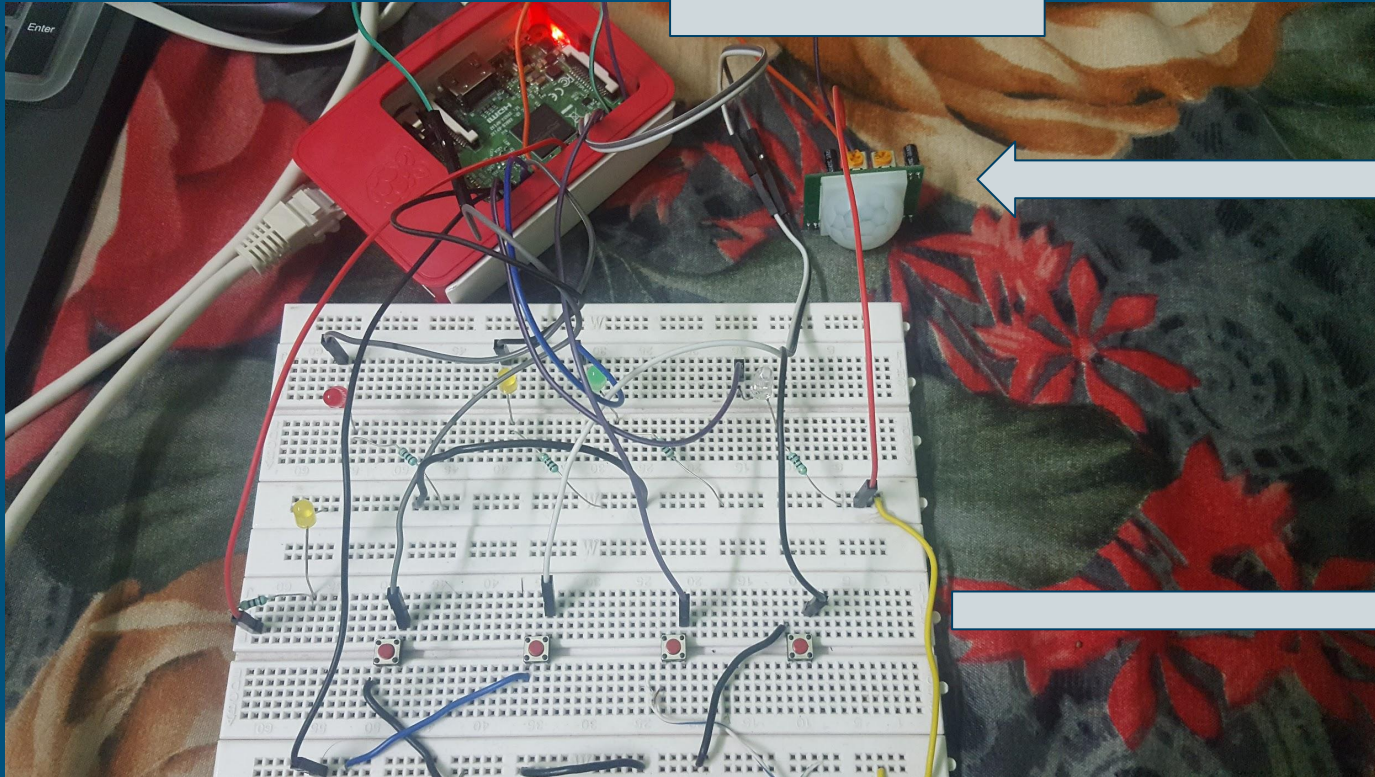
We have Built a Memory game in which LED's glow in certain pattern and if you are successful in repeating the same pattern you move to the next level where one extra led will glow in comparison to previous state else you end up losing the game.

Step involved :

1. We have written a **python script** to control the GPIO pins of Pi for glowing LED's controlling motion sensor and verifying the switch inputs.
2. Implemented the sequence of displaying LED's using random function then verifying that the sequence of button pressed is same as that of LED's.
3. Finally, We implemented the required circuit on breadboard by using appropriate GPIO pins.
4. Used Motion Sensor to start the game and Switches for inputs.

RASPBERRY PI 3

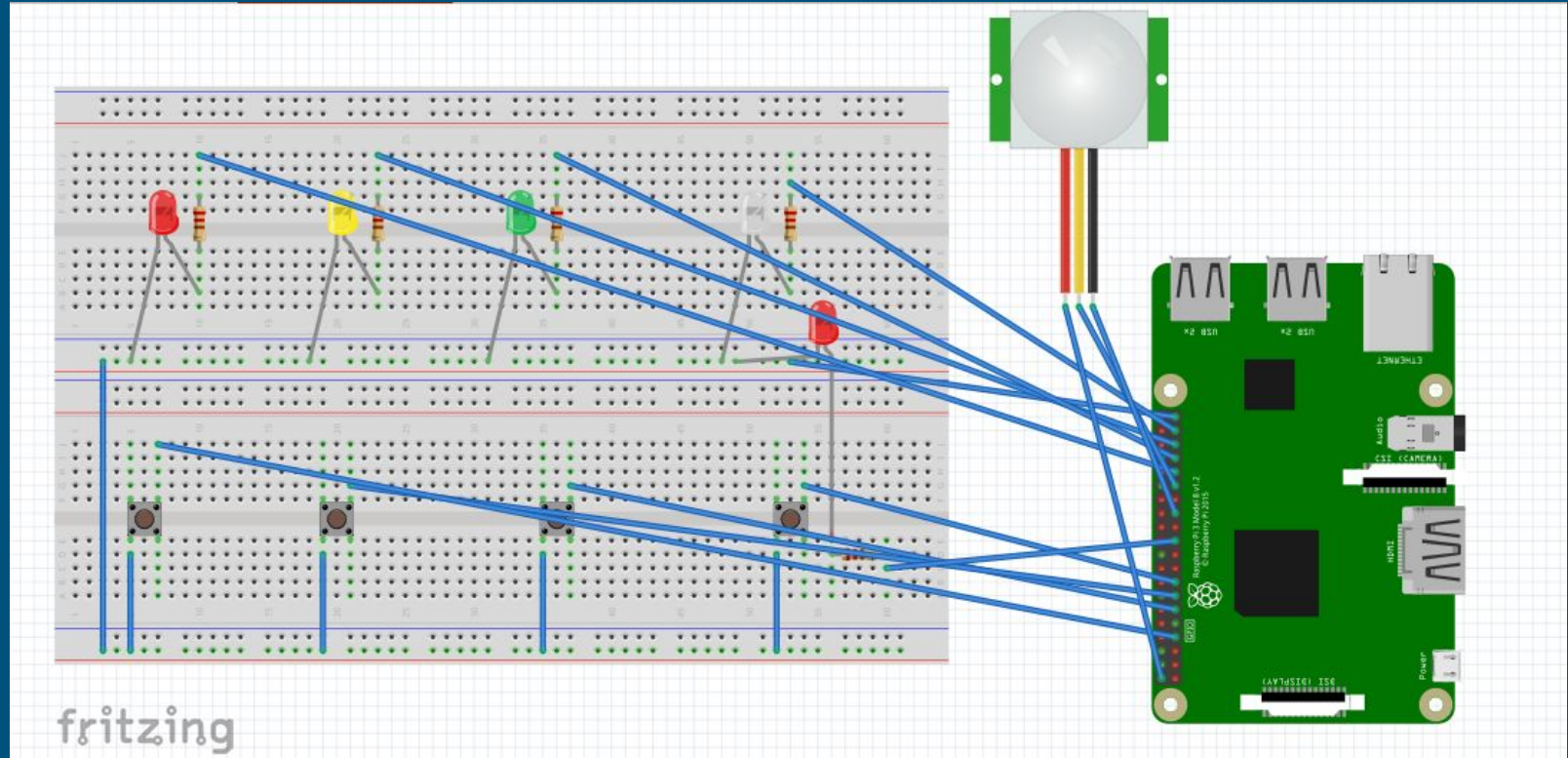
THE CIRCUIT



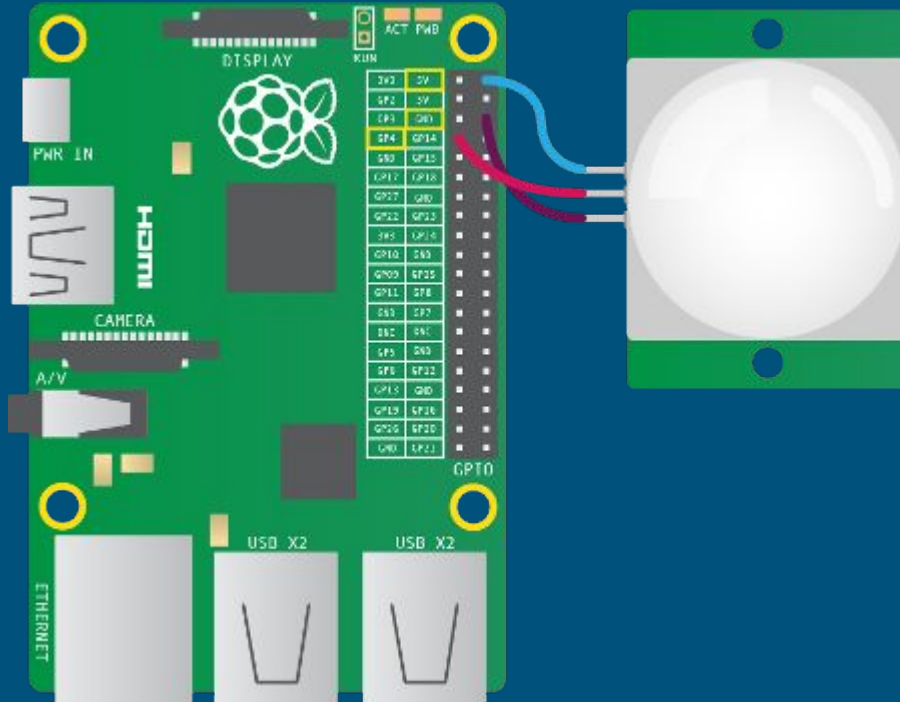
PIR MOTION SENSOR

BREADBOARD
SWITCHES & LED's

SCHEMATIC DIAGRAM USING FRITZING



Motion Sensor Connection Diagram



COMPONENT USED :

1.Raspberry Pi3

2.Breadboard

3.Resistors

4.LED's

5.Wires

6.Switch

7.PIR Motion Sensor

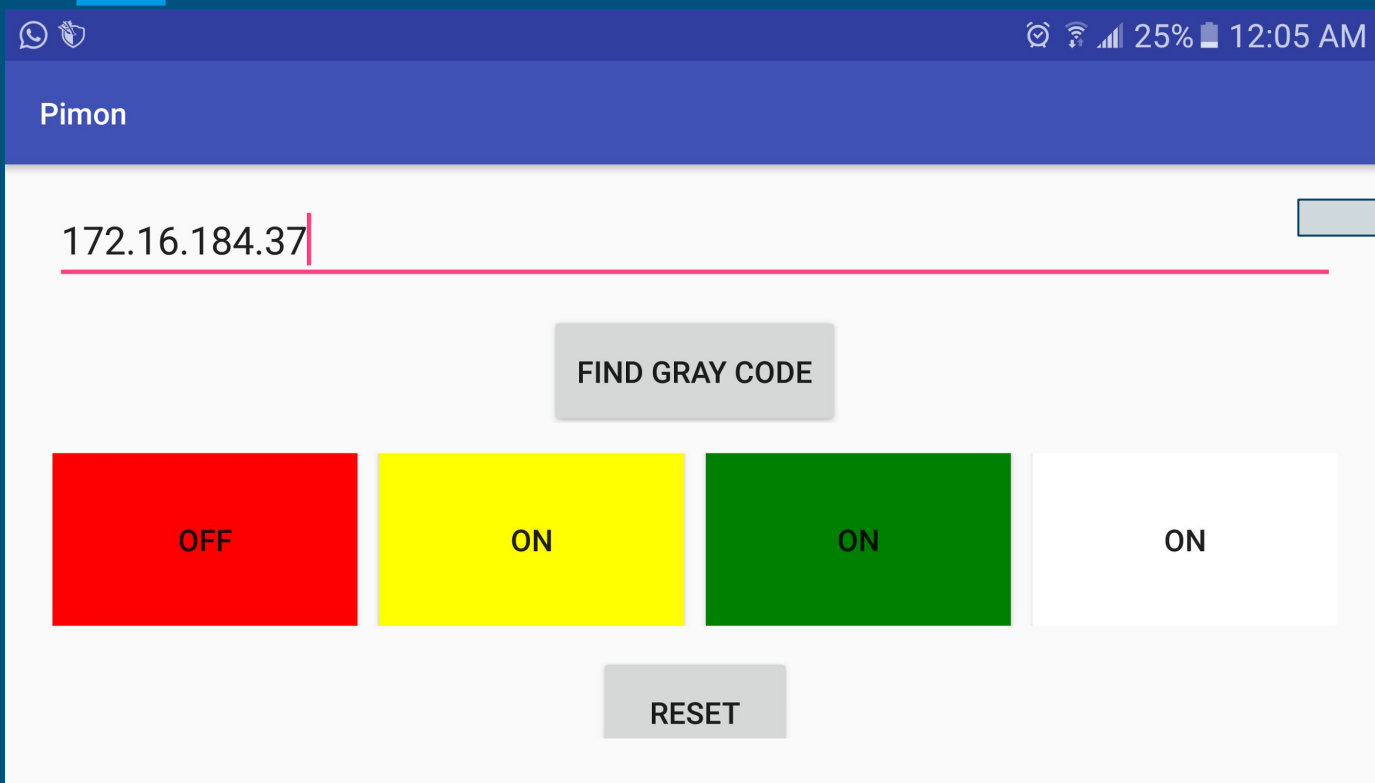
BINARY TO GRAY CODE (Binary Reflected):

In this part we are Converting the Binary Representation to Gray code Representation by glowing led in Gray code corresponding to its Binary Input. **But, the fun part is that we are doing this by an Android app made by us.**

Gray code represents each number in the sequence of integers $\{0 \dots 2^N - 1\}$ as a binary string of length N in an order such that adjacent integers have Gray code representations that differ in only one bit position.

This can be used in labelling the Karnaugh map.

APP



IP Address of Raspberry Pi



ON - 1
OFF - 0

Steps involved :

1. Made an Android App with Basic button Functionality which requires the IP of Raspberry Pi to connect to the server in order to execute the php script.
2. We have written a **php script** to control the led of raspberry pi with the help of WiringPi.
3. Finally implemented the circuit on the breadboard with appropriate GPIO connection.

COMPONENT AND SOFTWARE USED :

1.Android Studio

2.WiringPi (A pin based GPIO access Library)

3.apache2 with php5

4.BreadBoard

5.Resistors

6.LED's

7.Wires