

# Connect Four

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# Equipment

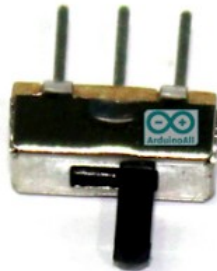
# Equipment

- WS2812B 30 LEDs (strip)
- TCRT5000



# Equipment

- Switch



- Resistor
- Wires Jump

# Coding

# Code with Arduino & FastLED (Lib)

```
1 #include "FastLED.h"
2 #include <pt.h>
3
4 #define PT_DELAY(pt, ms, ts) \
5     ts = millis(); \
6     PT_WAIT_UNTIL(pt, millis()-ts < (ms));
7
8 #define BTN0 PIN_PB0
9 #define BTN1 PIN_PB1
10 #define BTN2 PIN_PB2
11 #define BTN3 PIN_PB3
12 #define BTN4 PIN_PB4
13 #define BTN5 PIN_PB5
14 #define VCC_COM 700
15 #define VCC_PB 600
16
17 #define RESET_PIN_PD0
18
19 #define LDR0 PIN_PC0
20 #define LDR1 PIN_PC1
21 #define LDR2 PIN_PC2
22 #define LDR3 PIN_PC3
23 #define LDR4 PIN_PC4
24 #define LDR5 PIN_PC5
25
26 #define LED_PIN PIN_PD5
27
28 #define NUM_LEDS 30
29 #define COL 6
30 #define ROW 5
31 #define POOL_SIZE 20
32
33 CRGB leds[NUM_LEDS];
34 CRGB highlight = CRGB::White;
35 CRGB BG = CRGB::White; //change to white
36 CRGB OFF = CRGB::Black;
37 CRGB COLOR[6] = {CRGB::Blue, CRGB::Yellow, BG, OFF, CRGB::Red, CRGB::OrangeRed};
38 CRGB POOL[20] = {
39     CRGB::Red,
40     CRGB::OrangeRed,
41     CRGB::Goldenrod,
42     CRGB::Crimson,
43     CRGB::Blue,
44     CRGB::Indigo,
45     CRGB::Purple,
46     CRGB::MidnightBlue,
47     CRGB::Green,
48     CRGB::Yellow,
49     CRGB::Cyan,
50     CRGB::Magenta,
51     CRGB::Black,
52     CRGB::White,
53     CRGB::Pink,
54     CRGB::Lavender,
55     CRGB::Teal,
56     CRGB::Gold,
57     CRGB::Silver,
58     CRGB::Gray,
59     CRGB::Brown
60 };
61
62 FastLED.addLeds<WS2812B, LED_PIN>(leds, NUM_LEDS);
63 // .setDither(brightness < 255);
64 FastLED.setBrightness(brightness);
65
66 pinMode(PIN_PD3, OUTPUT);
67 pinMode(BTN0, INPUT_PULLUP);
68 pinMode(BTN1, INPUT_PULLUP);
69 pinMode(BTN2, INPUT_PULLUP);
70 pinMode(BTN3, INPUT_PULLUP);
71 pinMode(BTN4, INPUT_PULLUP);
72 pinMode(BTN5, INPUT_PULLUP);
73 pinMode(RESET, INPUT_PULLUP);
74 pinMode(LDR0, INPUT);
75 pinMode(LDR1, INPUT);
76 pinMode(LDR2, INPUT);
77 pinMode(LDR3, INPUT);
78 pinMode(LDR4, INPUT);
79 pinMode(LDR5, INPUT);
80
81 // PT_INIT(&pt marking);
82 PT_INIT(&pt_switchInput);
83
84 void loop()
85 {
86     if (reset)
87     {
88         fullDisplay(4);
89         delay(500);
90         fullDisplay(5);
91         current_player = 0;
92         selectColor();
93         selectColor();
94         count = 0;
95         for(int i=0;i<NUM_LEDS;i++)
96             point[i] = -1;
97         point_p1 = 0;
98         point_p2 = 0;
99         reset = false;
100     }
101     initial();
102     while (!endgame)
103     {
104         marking();
105         // marking(&pt marking);
106         // switchInput();
107         switchInput(&pt_switchInput);
108         switchReset();
109     }
110 }
111
112 markColome(mn);
113 }
114
115 void fullDisplay(int sel)
116 {
117     //winner
118     if (sel == 0 || sel == 1)
119     {
120         for (int c = 0; c < COL; c++)
121             for (int r = 0; r < ROW; r++)
122                 leds[c*ROW+r]=COLOR[sel];
123         FastLED.show();
124         delay(500);
125     }
126     //draw
127     else if (sel == 2)
128     {
129         for (int c = 0; c < COL / 2; c++)
130             for (int r = 0; r < ROW; r++)
131                 leds[c*ROW+r]=COLOR[0];
132         for (int c = COL / 2; c < COL; c++)
133             for (int r = 0; r < ROW; r++)
134                 leds[c*ROW+r]=COLOR[1];
135         FastLED.show();
136         delay(500);
137     }
138     //select
139     else if (sel == 3)
140     {
141         for (int i = 0; i < NUM_LEDS; i++)
142             leds[i] = POOL[select];
143         if (current_player == 0)
144         {
145             leds[2 * ROW] = BG;
146             leds[2 * ROW + 4] = BG;
147             for (int i = 0; i < ROW; i++)
148                 leds[3 * ROW + i] = BG;
149             leds[4 * ROW] = BG;
150         }
151         else if (current_player == 1)
152         {
153             for (int i = 0; i < ROW; i++)
154             {
155                 if (i == 3)
156                     continue;
157                 leds[2 * ROW + i] = BG;
158             }
159         }
160     }
161 }
```

# Model Connect Four

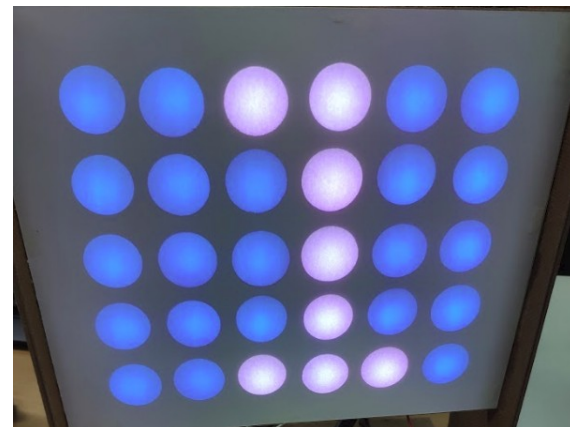
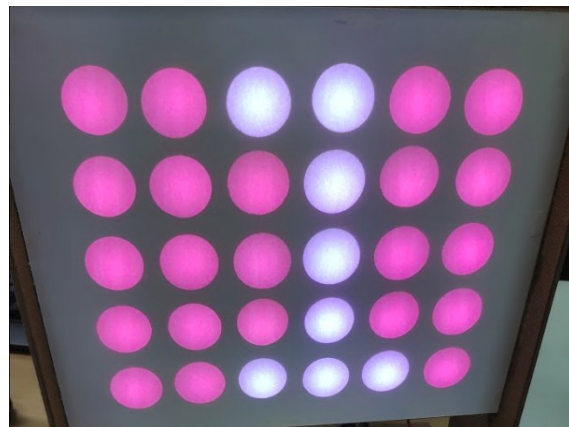
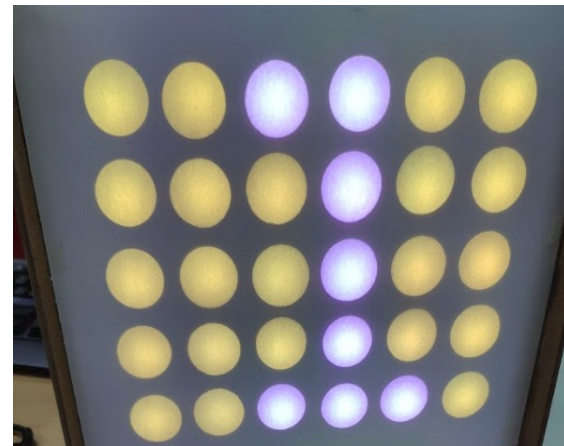
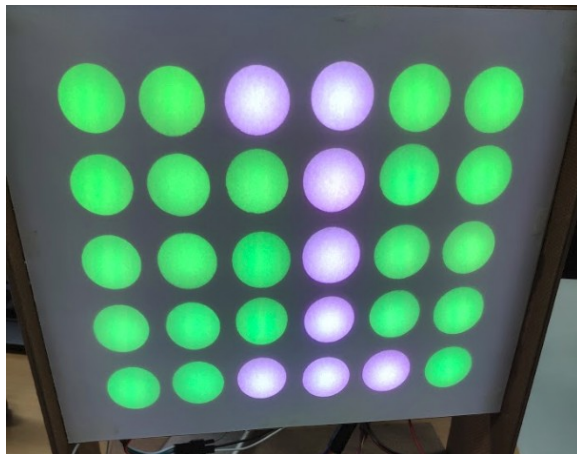


Ready!!!



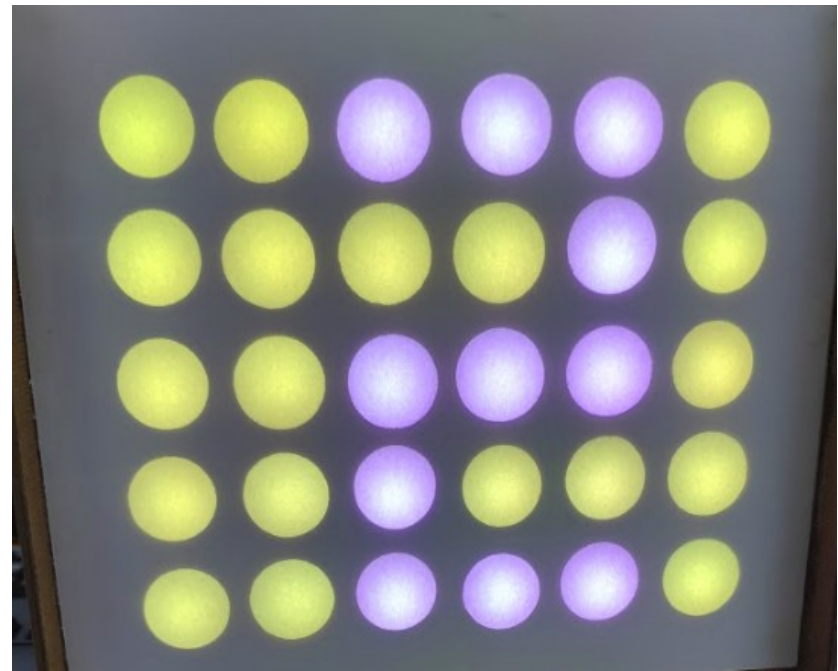
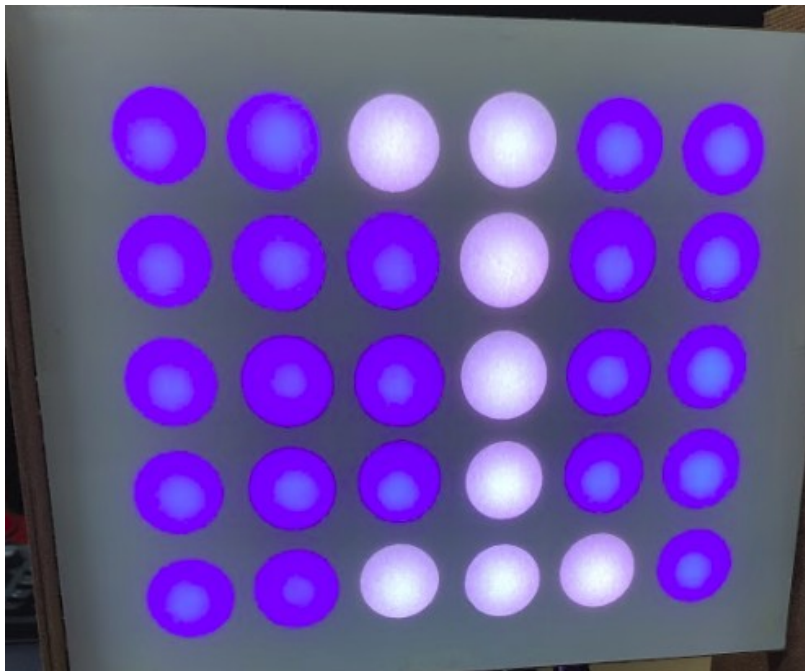


# Select Color

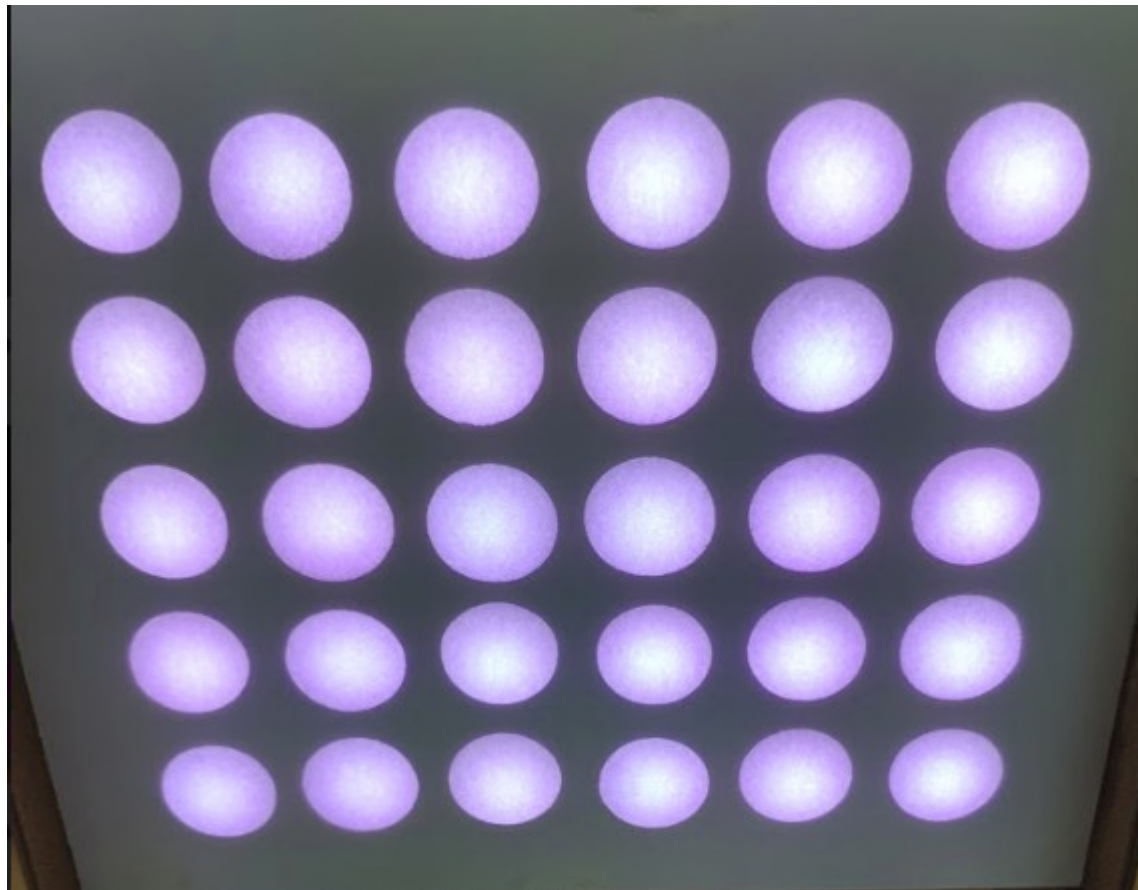




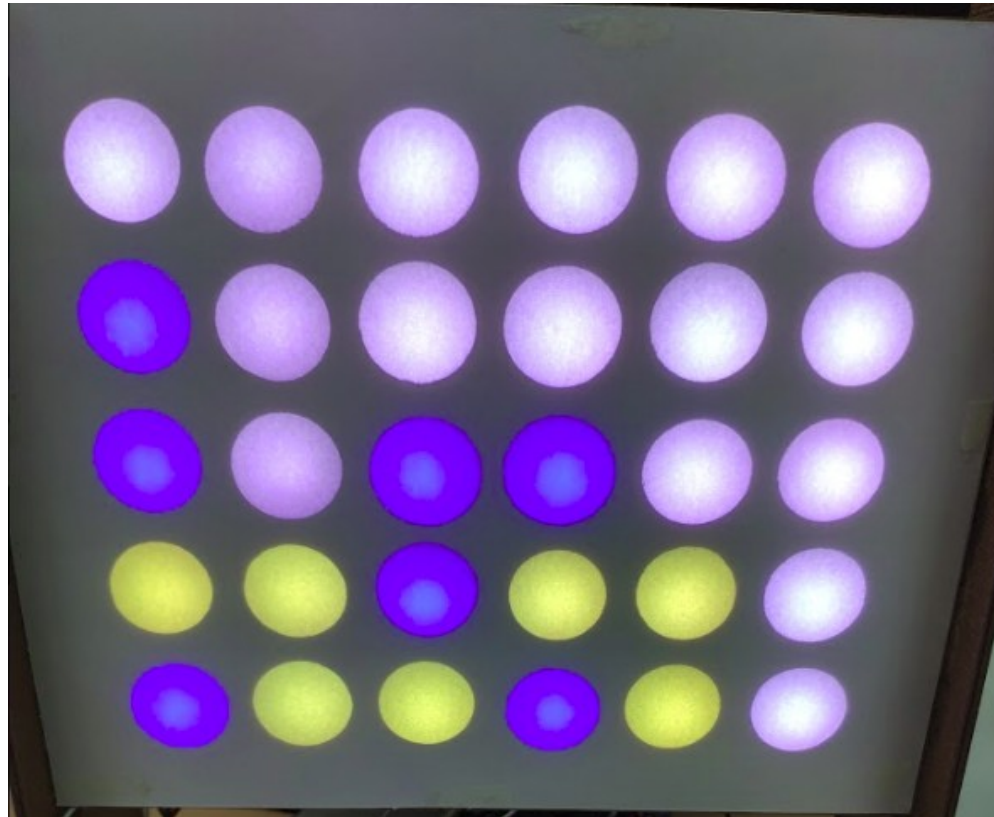
# Player1 & Player2



# Start!!

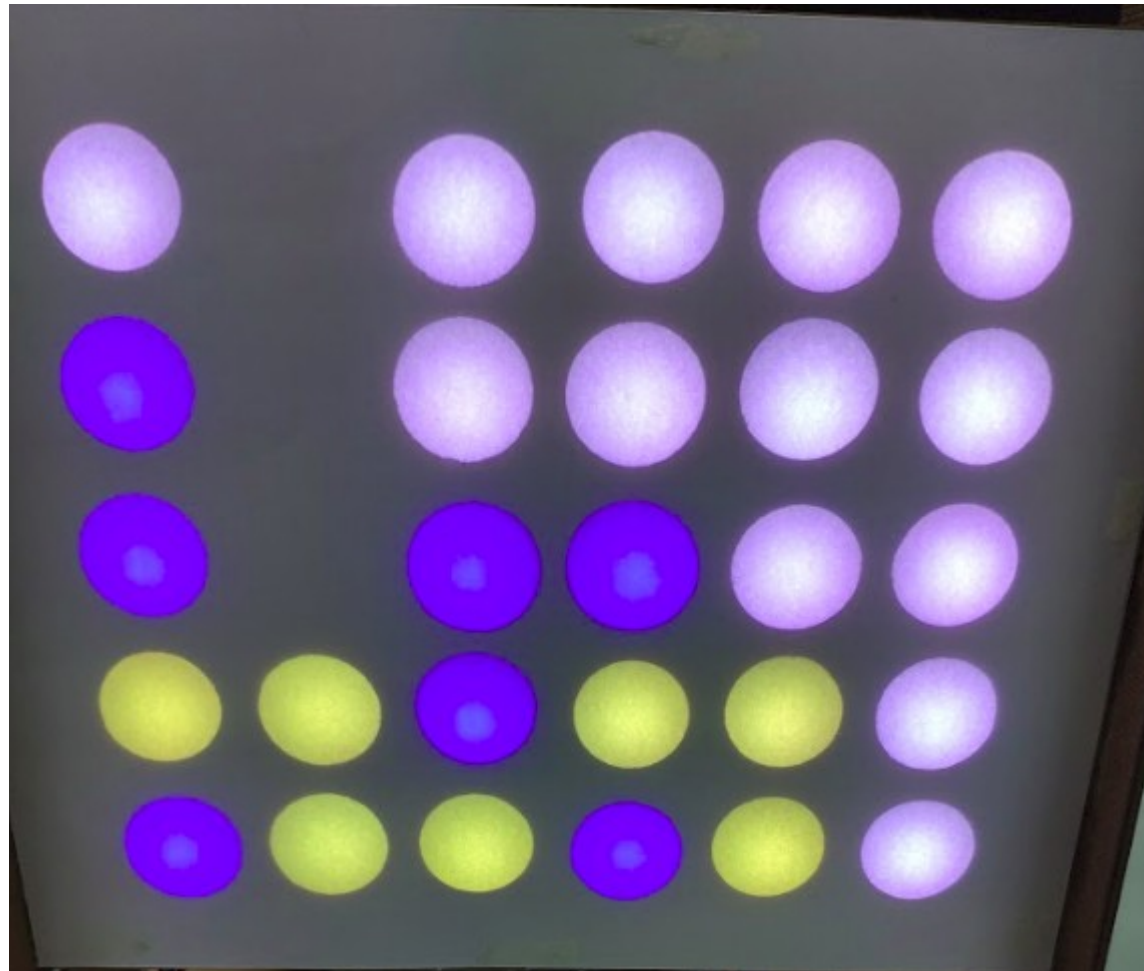


# Play



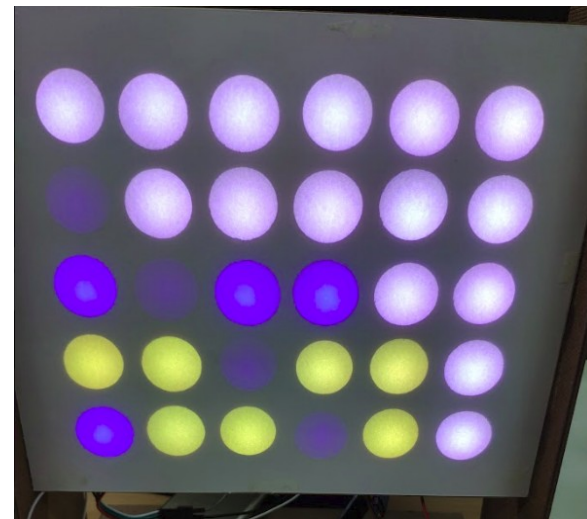
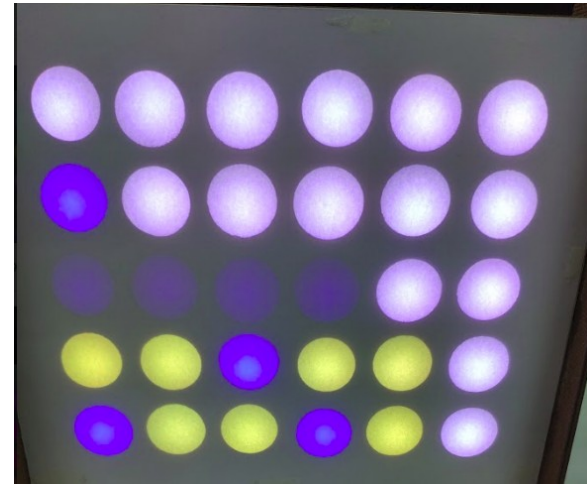
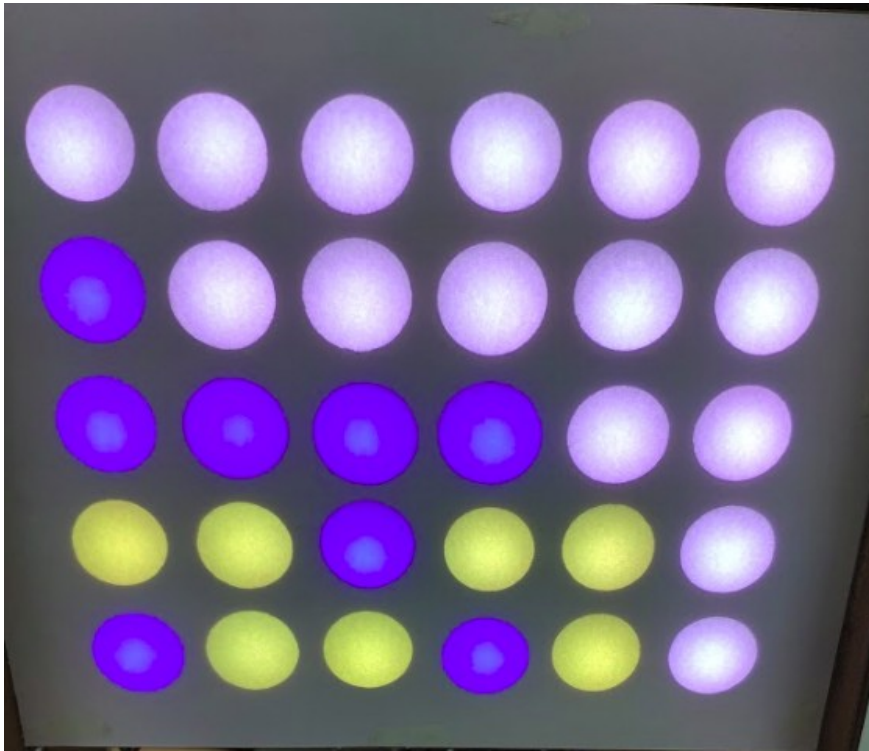


Pip~ Pip~

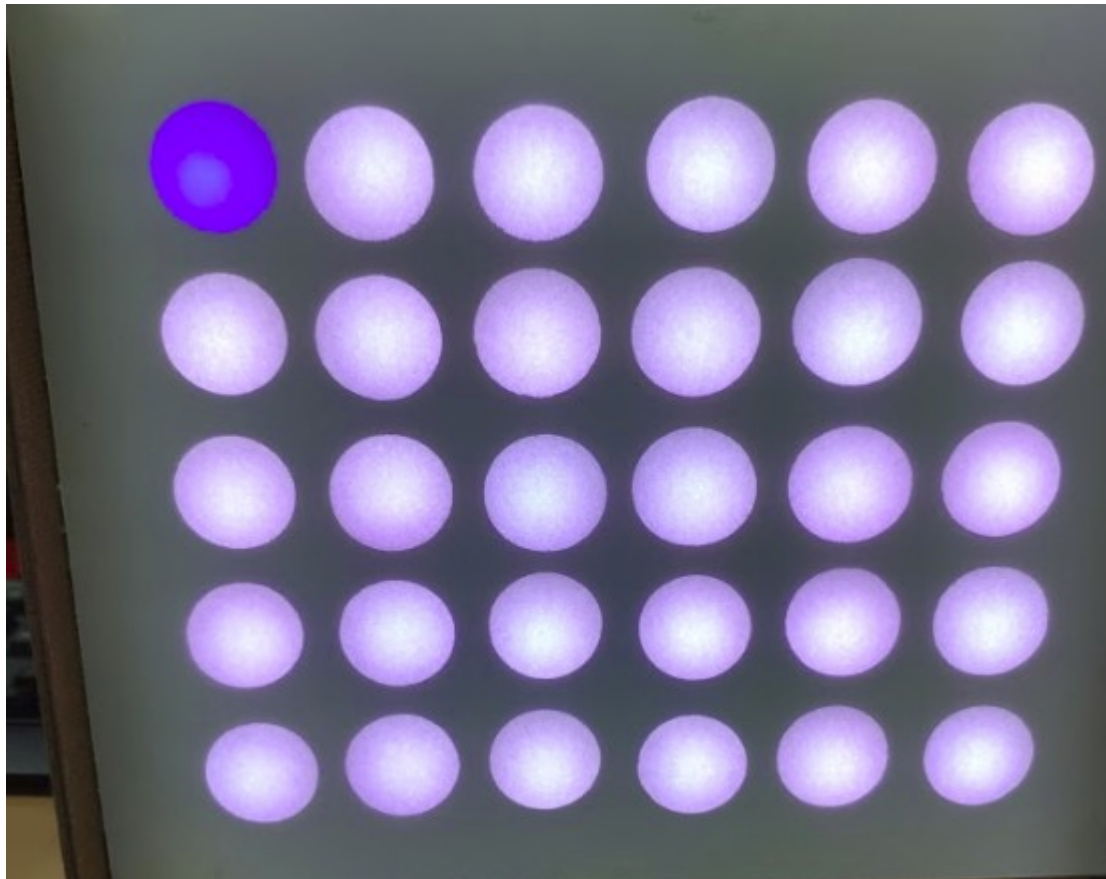




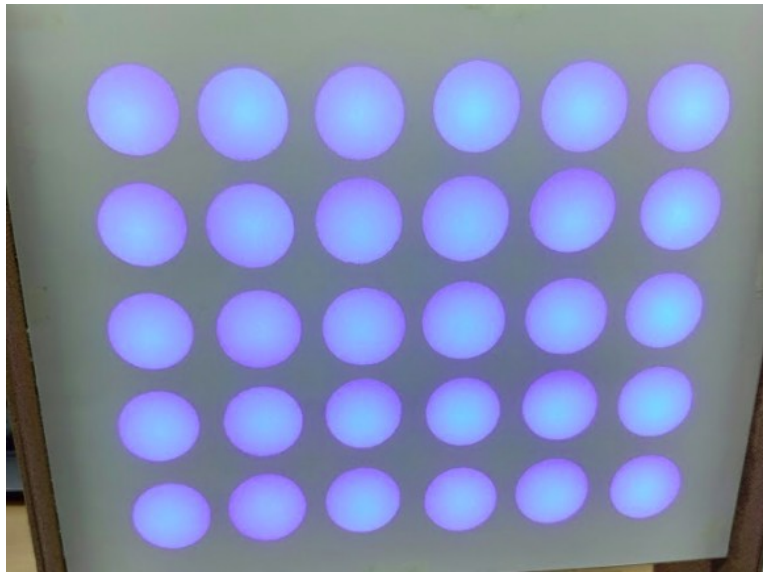
# Blue Win!!



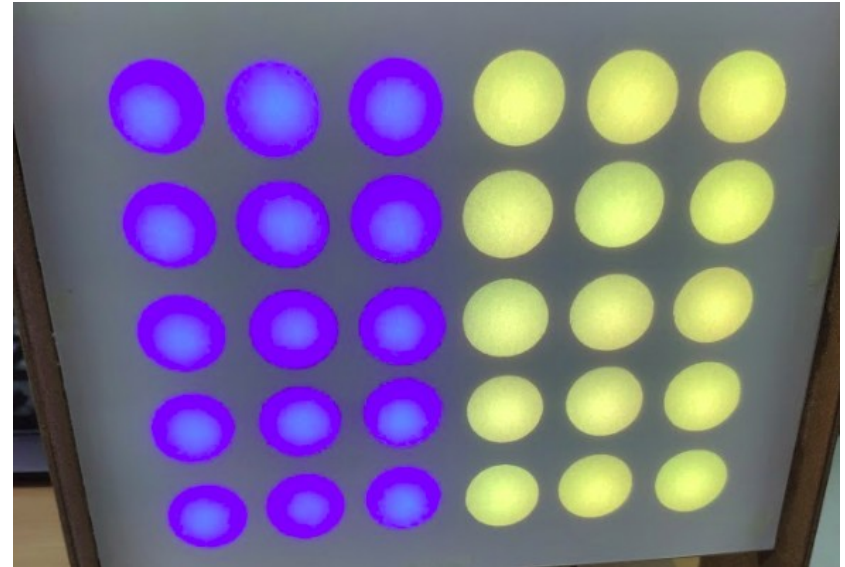
# Score Board



# End Game



Win



Draw

# Switch Off

