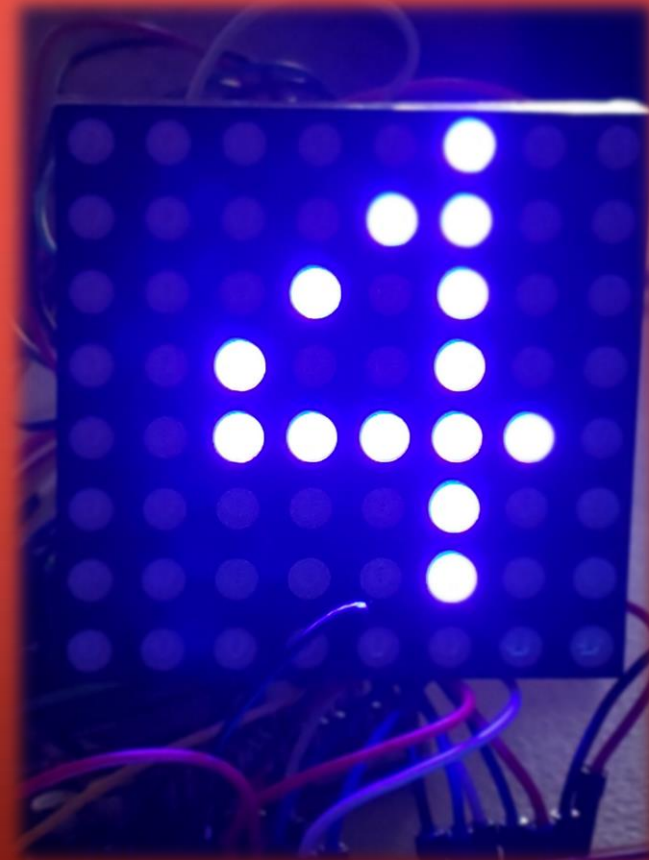


BU ELECTRONICS LAB

LET'S CONNECT4!

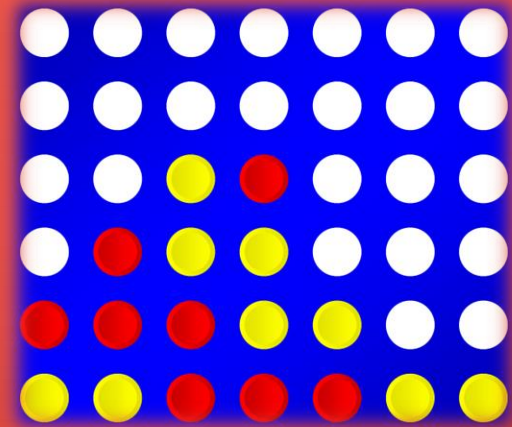
JEIMIN GARIBNAVAJWALA

7 DECEMBER 2020



WHAT IS CONNECT4 (C4)?

- A two players puzzle game
- A player tries to put 4 checkers consecutively.



Source: Google images

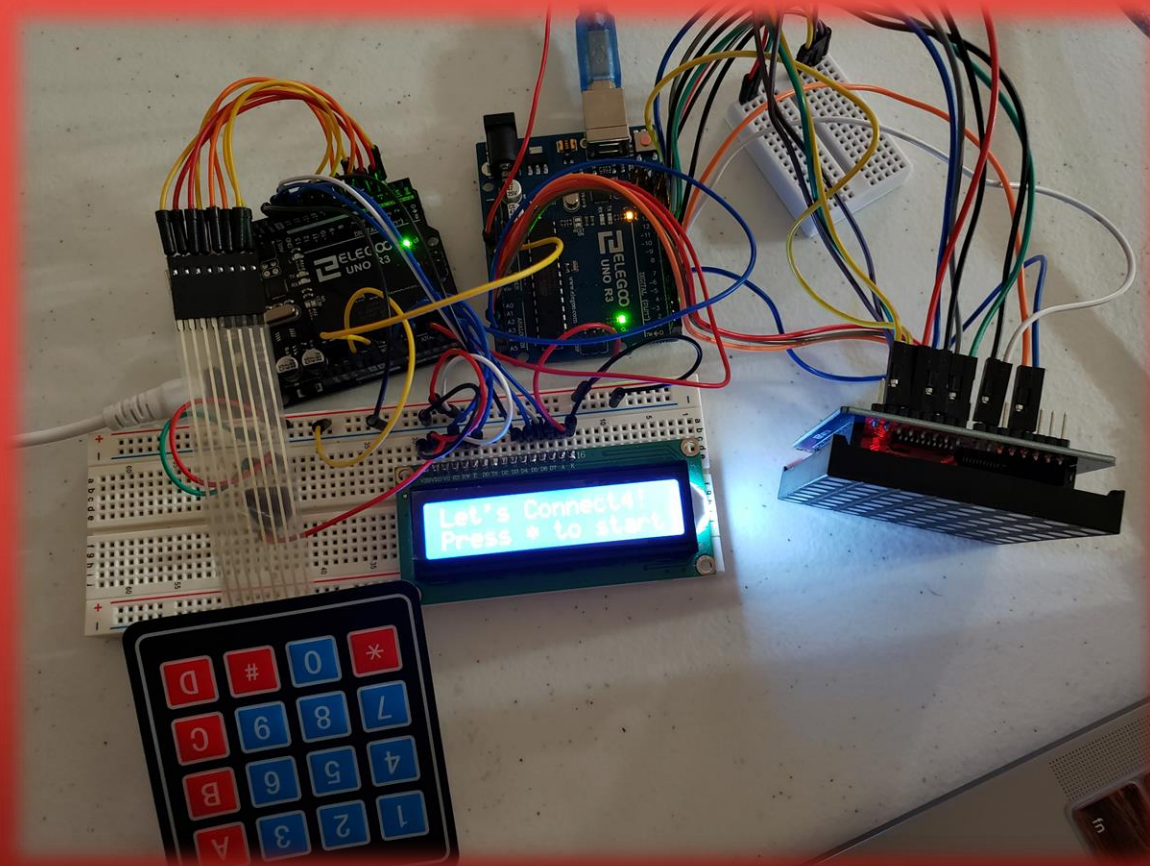


Source: Arduino driven C4

OVERVIEW

- Why Connect4?
 - A simple and working model
 - Created algorithm in Computer Science 111 class
- Hardware
- Software
- Video Demonstration

COMPLETE CIRCUIT

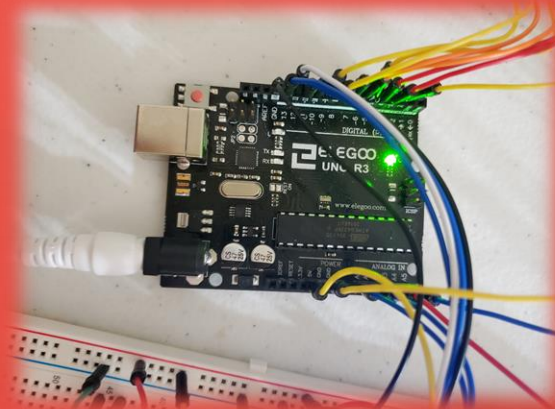


HARDWARE



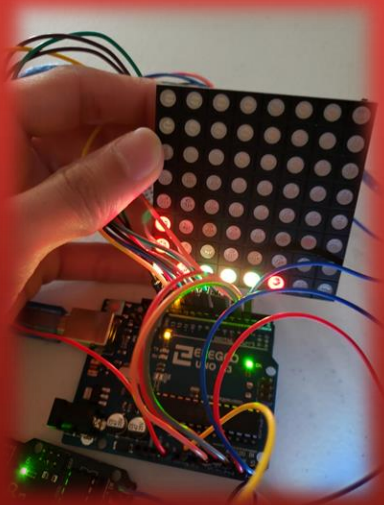
Switch membrane (Input)

1. Switch to Master
→



Master Arduino: Receive input, transmits signals to Slave Arduino

2. Master to Slave
↙



RGB Matrix & Slave Arduino

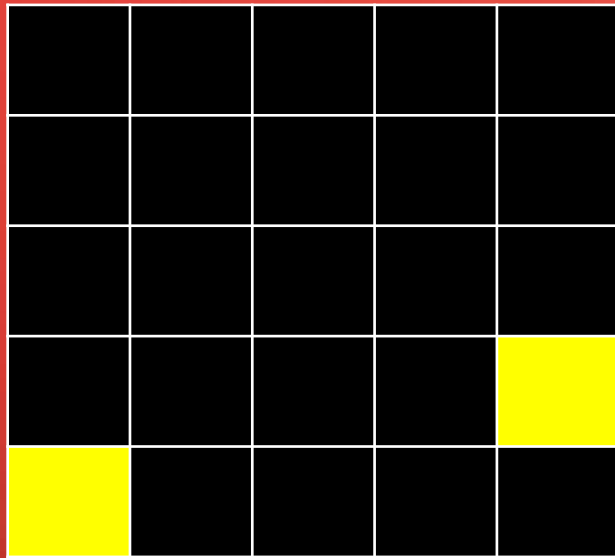
3. Slave to Master
↘



LCD: Displays game status

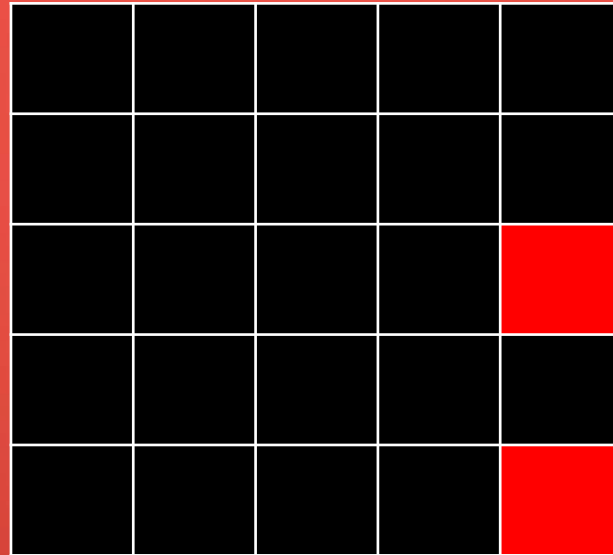
4. Master to LCD
↘

SOFTWARE



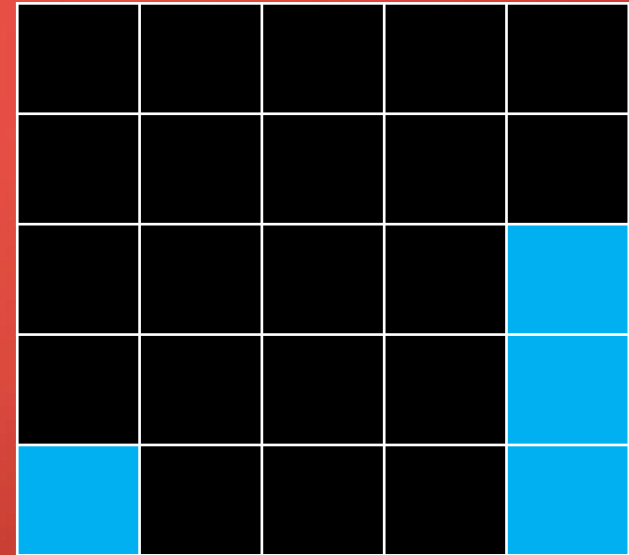
1	2	3	4	5
---	---	---	---	---

Player1: Yellow



1	2	3	4	5
---	---	---	---	---

Player2: Red

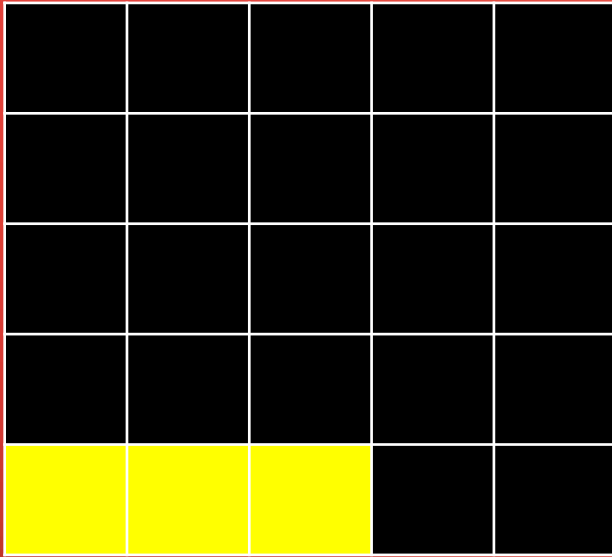


1	2	3	4	5
---	---	---	---	---

Game Board

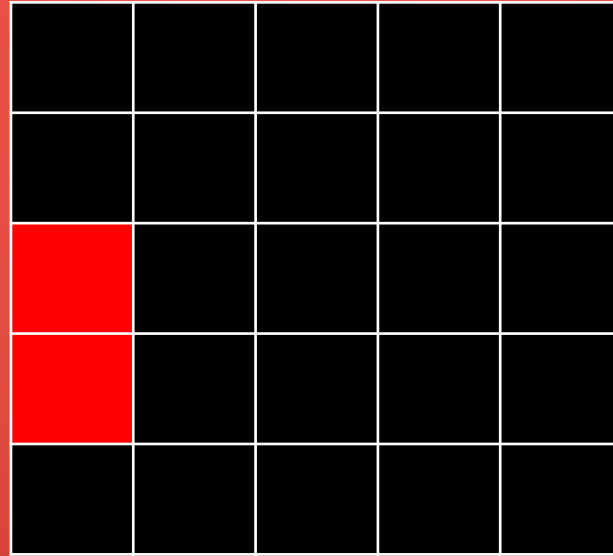
Next: AI implementation upon suggestion of Daniel Merlos

AI



1	2	3	4	5
---	---	---	---	---

Player1 (Myself): Yellow



1	2	3	4	5
---	---	---	---	---

Player2 (AI): Red

Lookahead of 0

50	50	50	50	50
----	----	----	----	----

Lookahead of 1

0	0	0	50	0
---	---	---	----	---

Next: A video demonstration. Me vs AI

VIDEO DEMONSTRATION: ME VS. AI



Myself as Player1: Representing Yellow Checker (LED)

AI as Player2: Representing Red Checker (LED)

Notice that AI prevents me from connecting 4 in the bottom row by placing its checker in the 4th column

The background is a solid dark red color. In the four corners, there are decorative elements consisting of thin, light red lines that resemble circuit traces or a stylized tree structure. These lines end in small circles. The top-left and bottom-left corners have more complex, branching patterns, while the top-right and bottom-right corners have simpler, more linear patterns.

THANK YOU FOR YOU ATTENTION

HAVE A GREAT WEEK