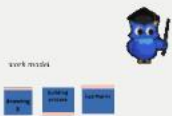


# Tic-Tac-Toe Robot

## 01

### Robot



## 08

Thank u All  
Any  
questions?

## 07

future work:

- 1. Adding & verify mode
- 2. Adding a hint mode
- 3. Further improvements etc to the mobile application
- 4. Adding other control methods

## 02

### Drawing X

- what we use in hardware?
  - \* 4 jumper wires
  - \* 2 pin 7 wire
  - \* 2 pin 4 wire
  - \* 2 pin 5 wire
- \* 3 Deluxe VS-5V305A-5A type
- \* power supply 22V
- \* Arduino Mega
- \* Pro Tester



## 04

### Process Building



## 03

### Drawing X

what we use in software?



- \*AccelStepper.h
- to control stepper motors to draw it without using GCODE
- \*ESP32Stepper library to control esp which connect to wireless
- \*DFRobot Mini MP3 to control mp3 with contact together

## 06

CONSTRAINTS:

- Time
- find suitable device
- write full code for drawing x
- define user menu
- Define the playing area
- Dealing with led matrix

## 05

### LED MATRIX

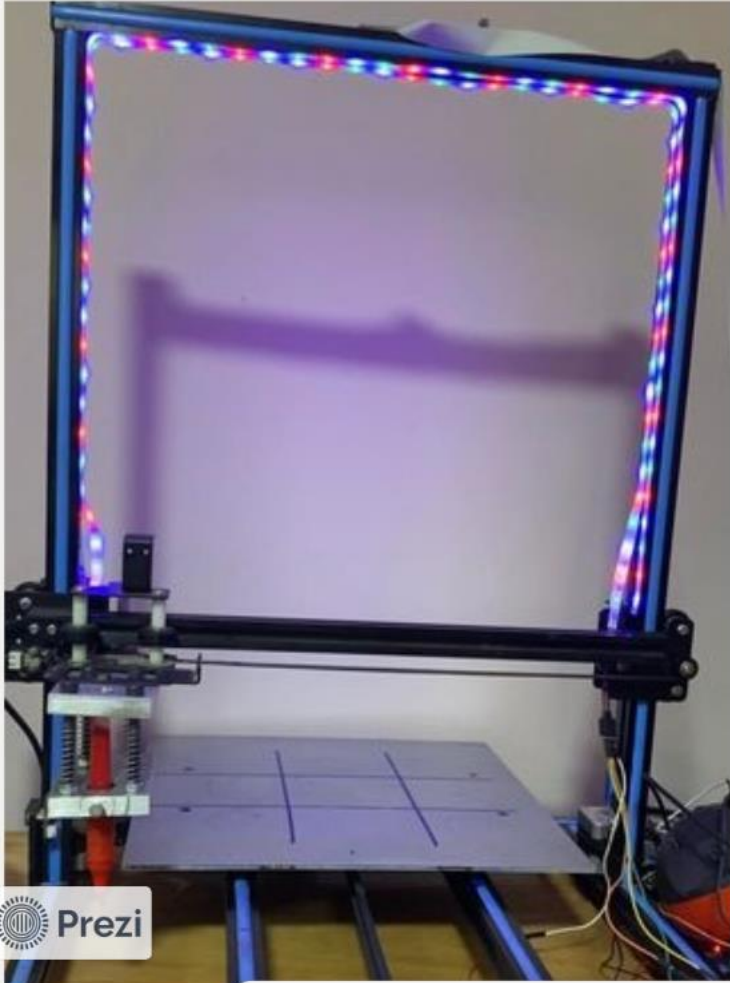
Hardware part:

- \*Arduino nano
- \*MAX7219 LED Dot Matrix

Software part:  
\*LedControl.h to control the led matrix and display the sentences

# Robot

To Reach to our goal we devide the work for three steps



*work model*

**drawing**  
**X**

**building**  
**process**

**Led Matrix**



# *work model*

**drawing**  
**X**

**building  
process**

**Led Matrix**

# Drawing X

*what we use in hardware ?*

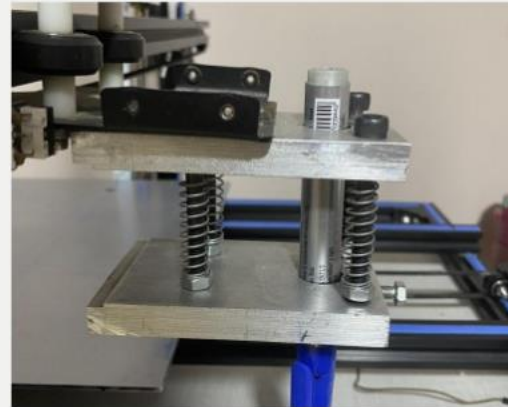
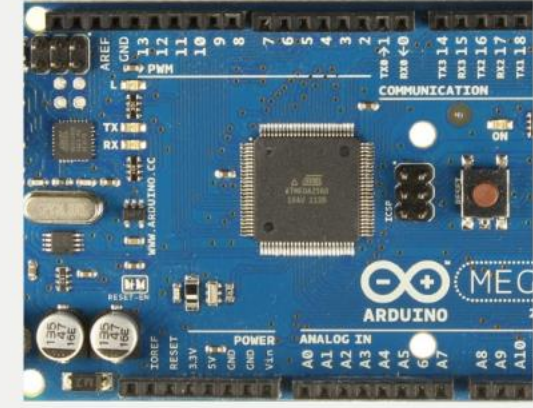
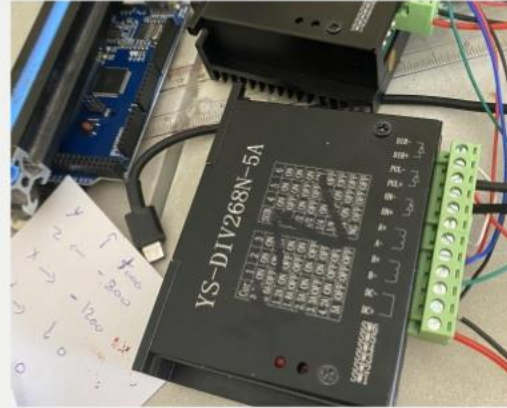
- \* 4 Stepper Motor*
  - \*2 for Y axis*
  - \*1 for x axis*
  - \*1 for z axis*

*\* 3 Drivers YS-DV268N-5A type*

*\* power supply 12V*

*\* Arduino Mega*

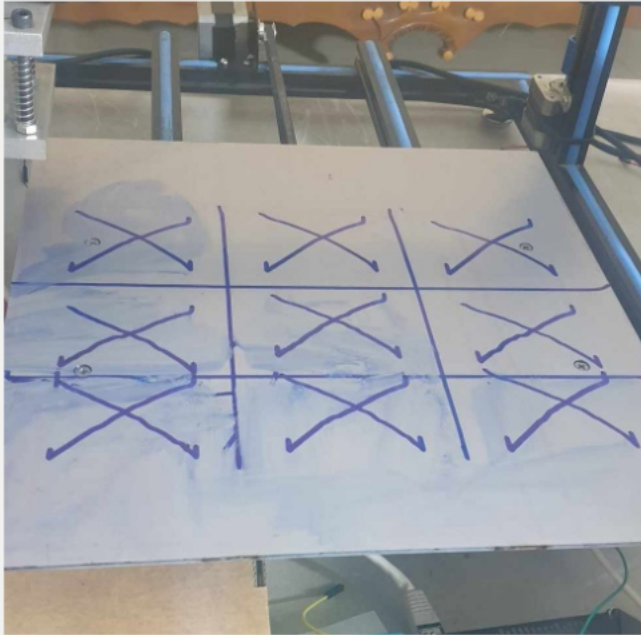
*\*Pen Holder*



# Drawing X



what we use in software ?



\*AccelStepper.h

to control stepper motors to draw X without using GCODE

\*ESP8266WiFi library

to control esp which connect to wiengand

\*DFPlayer Mini MP3 to control mp3 hich connect tospeaker

# Process Building

What we use as hardware component?

\* Raspbari pi

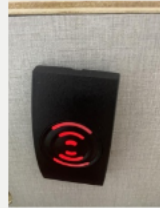
\*Raspberry Pi Camera

\*push button to select the level

\*speaker with mp3

\*ESP with wiengand

\*RGB



What laibrary we use in SW?

\***cv2** To open the camera and take the photo

\***time** Give the robot time to complete a specific task

\***pigpio** to control RGB led

\***random** to generate random number

\***serial to connect with mega and uno arduino**

# What we use as hardware component?

- \* Raspbari pi
- \*Raspberry Pi Camera
- \*push button to select the level
- \*speaker with mp3
- \*ESP with wiengand
- \*RGB



What library we use in SW?

- \* **cv2** To open the camera and take the photo
- \* **time** Give the robot time to complete a specific task
- \* **pigpio** to control RGB led
- \* **random** to generate random number
- \* **serial to connect with mega and uno arduino**

# LED MATRIX

*Hardware part:*

**\*Arduino nano**



**\*MAX7219 LED Dot Matrix**

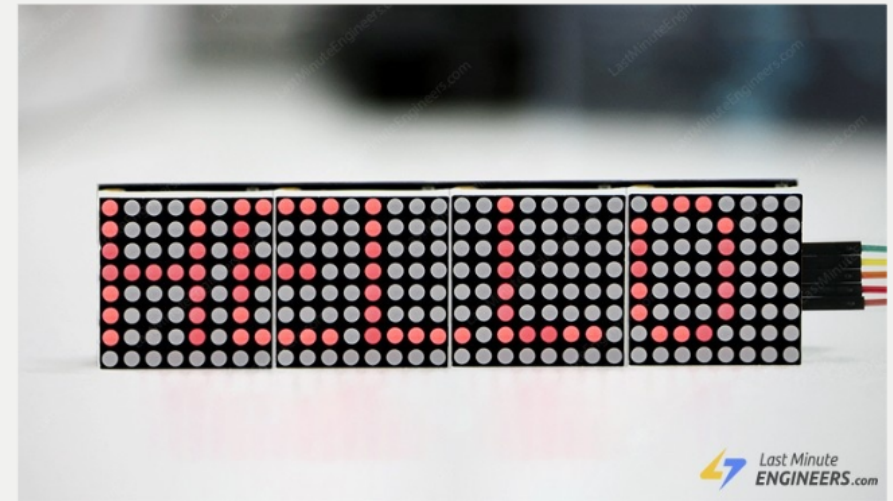
Software part:

**\*LedControl.h:**

to control the led matrix  
and display the  
sentences

*Hardware part:*

**\*Arduino nano**



**\*MAX7219 LED Dot Matrix**

Software part:

**\*LedControl.h:**

to control the led matrix  
and display the  
sentences

# CONSTRAINTS:

- Time

- find suitable driver

write full code for drawing x

detect user move

- Define the playing area

Dealing with led matrix

- **Time**

- **find  
suitable  
driver**

**write full  
code for  
drawing x**

**detect  
user  
move**

- **Define  
the  
playing  
area**

# Dealing with led matrix

# future work:

**1. Adding a  
verify mode**

**2. Adding a  
hint mode**


**3. Further  
improvements to the  
mobile  
application**

**4. Adding  
other  
control  
methods**

# 1. Adding a verify mode

## 2. Adding a hint mode

# **3. Further improvements to the mobile application**

A dark blue circle is centered on a light gray background. Inside the circle, the text "4. Adding other control methods" is written in a bold, white, sans-serif font, arranged in four lines.

# **4. Adding other control methods**

**Thank u ALL**

**Any**

**questions?**