PROJECT

MEDICINE DELIVERY ROBOT

Professor: Dara To

Course: IE 221

Assisted by: Kasy Pho

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TEAM

Sreyleap nin

Wanvatana Ouk

Socheatkhemaro Kor

Manith Choeun

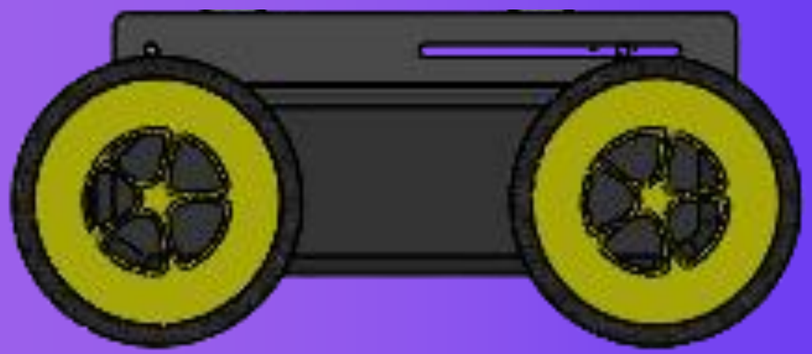
Kakada Vongvorn

Kimsrong Vy

INTRODUCTION

HAVE YOU EVER DREAMT OF A DELIVERY MACHINE IN A HOSPITAL?THIS IS A MEDICINE DELIVERY ROBOT,THAT CAN HELP US DELIVER MEDICINE TO PATIENTS ON AN EXPECTED TIME.TO BETTER HEALTH CARE SERVICE IN THE 21ST CENTURY ,THIS MACHINE CAN LEVEL UP THE QUALITY OF THE HOSPITAL.

PROBLEM STATEMENT



Robot delivering medicine could involve addressing issues such as :

- ensuring timely and accurate deliveries
- navigating various environments safely
- maintaining security of medications
- and integrating with existing healthcare systems.

OBJECTIVES

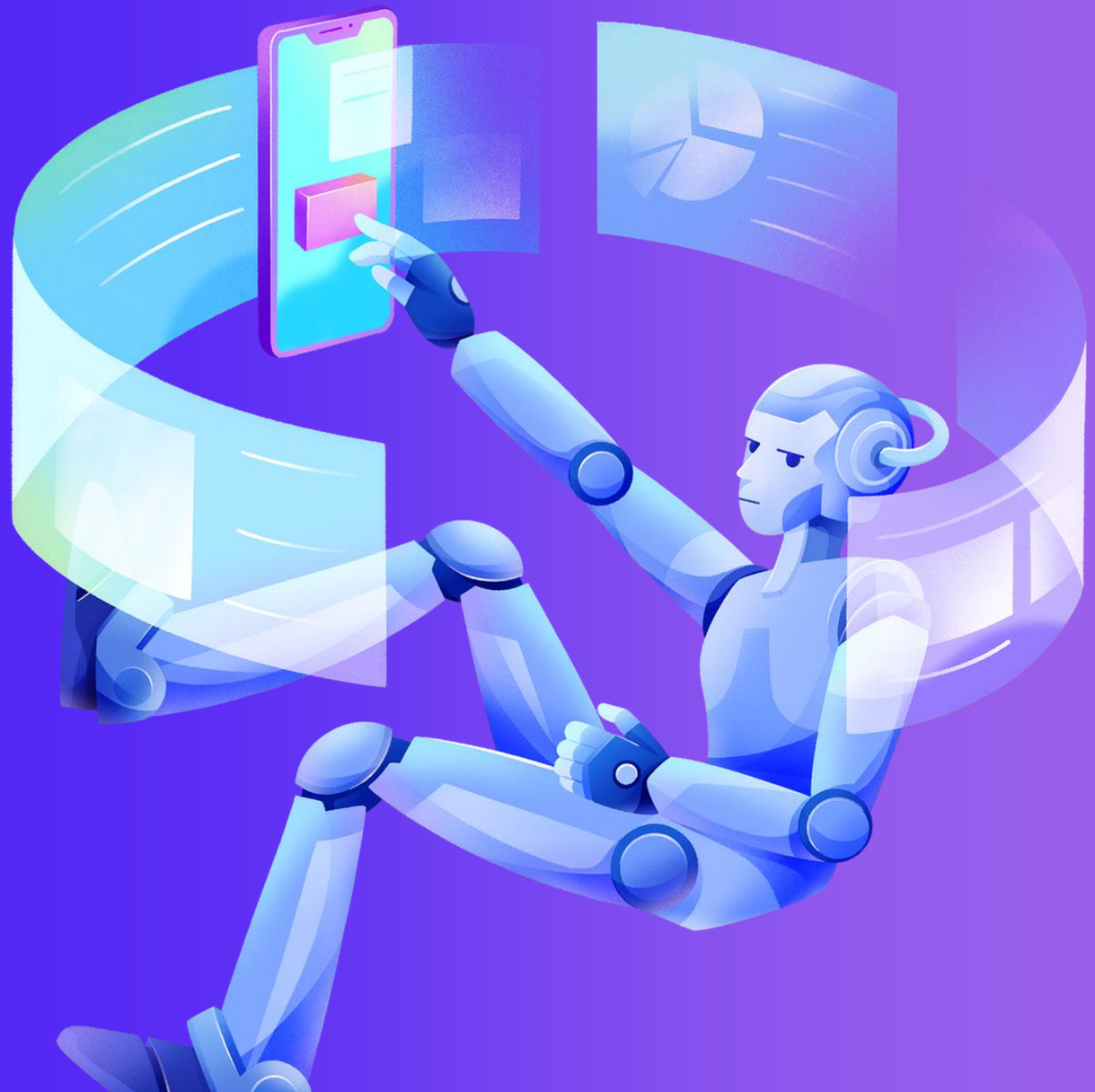
Our main goal is to serve our stakeholders, which are health care people and patients.
We built this machine to:

BETTER THE QUALITY OF HOSPITAL SERVICE

REDUCE THE HUMAN-LABOR

RAISING TECHNOLOGY OF THE FIELD OF SCIENCE

PROJECT TIMELINE



TIMELINE:

1. PLANNING AND RESEARCH: 1 WEEK (PROCESSING)
2. COMPONENT ACQUISITION: 1 WEEK (DEPENDS ON AVAILABILITY)
3. ASSEMBLY: 1 WEEK
4. PROGRAMMING AND TESTING: 1 WEEK
5. ITERATION: ONGOING

TOTAL: 4 WEEKS

TOOLS USING

Arduino Uno

L298N Driver

IR sensor

HC-06
Bluetooth

TOOLS USING

TOOLS USING

Financial Usage

- UNO R3 MEGA328P +USB Cable:(1PCS): $8.
- IR Infrared Obstacle Avoidance (4PCS): $2.20
- 3.7V 18650 Lithium Battery(4PCS): $3.00
- 18650 Battery Charger 3.7V 4.2V(1PCS): $2.50
- HC-05 Wireless Serial 6Pin(1PCS): $5.00
- Driver L298N 3A Motor Board(1PCS): $2.00
- Case SW 3.7V 18650 Holder(1PCS): $0.60
- Wire 40P Dupont Cable(1PCS): $0.75
- Wire 40P Dupont Cable(1PCS): $0.75
- TT Geared Motor Yellow 3-12V(4PCS): $3.20
- TT Yellow Wheel 65mm(4PCS): $3.00

2/12/2024 10:53 AM **Sales Receipt #10486**

LET STORE

#50B, St 221, Phsar Depo II, Phnom Penh
Contact: 089 603 311
Rate: 1 USD = 4100 KHR

Bill To: Mr. Maro Maro
061 302 400

Item Name	Qty	Price	Ext Price
UNO R3 MEGA328P +USB Cable 3119 CP2102	1	$8.00	$8.00
IR Infrared Obstacle Avoidance 3264 3.3-5V	4	$0.55	$2.20
3.7V 18650 Lithium Battery 6340 800mAh	4	$0.75	$3.00
18650 Battery Charger 3.7V 4.2V 3404 2 Slot	1	$2.50	$2.50
HC-05 Wireless Serial 6Pin 3100 HC05	1	$5.00	$5.00
Driver L298N 3A Motor Board 3335 Red Board	1	$2.00	$2.00
Case SW 3.7V 18650 Holder 6201 2S 2 Slot	1	$0.60	$0.60
Wire 40P Dupont Cable 3571 FM 20cm	1	$0.75	$0.75
Wire 40P Dupont Cable 3570 MM 20cm	1	$0.75	$0.75
TT Geared Motor Yellow 3-12V 4840 1:48 S2	4	$0.80	$3.20
TT Yellow Wheel 65mm 4853 65mm*30mm	4	$0.75	$3.00

Subtotal: $31.00
5 % Disc: - $1.55
RECEIPT TOTAL: $29.45

Cash: $29.45

Total Sales Discounts: $1.55

Note: Purchases are not Returnable or Refundable
Thank for shpping with us. Please come again!

Financial Usage

- M3 GB818 Phillips Cross Bolt 5032 M3*8 (20PCS): $0.24
- Nut DIN934 304 Stainless Steel 5516 M3 (10PCS): $0.30
- M3 Copper Brass Pillar F-M 2695 M3*50+6(6PCS): $1.14
- Car Body Aluminum 4WD(1PCS): $3.75
- M3 Copper Brass Pillar F-M (82687 M3*10+6(10P)PCS): $0.36

TOTAL: $35.24

2/13/2024 12:52 PM **Sales Receipt #10530**

LET STORE

#50B, St 221, Phsar Depo II, Phnom Penh
Contact: 089 603 311
Rate: 1 USD = 4100 KHR

Item Name	Qty	Price	Ext Price
M3 GB818 Phillips Cross Bolt 5032 M3*8 (10PCS)	2	$0.12	$0.24
Nut DIN934 304 Stainless Steel 5516 M3 (10PCS)	2	$0.15	$0.30
M3 Copper Brass Pillar F-M 2695 M3*50+6(10P)	0.6	$1.90	$1.14
Car Body Aluminum 4WD 4877 4WD Down	1	$3.75	$3.75
M3 Copper Brass Pillar F-M 2687 M3*10+6(10P)	0.8	$0.45	$0.36

Subtotal: $5.79

RECEIPT TOTAL: $5.79

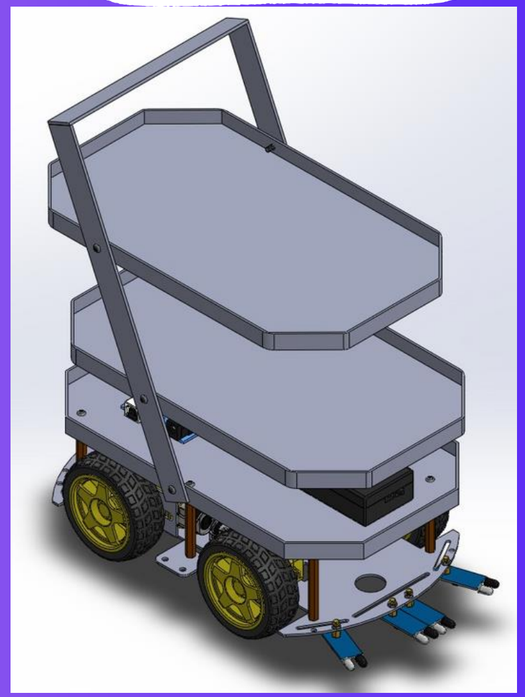
Cash: $5.79

Note: Purchases are not Returnable or *Refundable*
Thank for shpping with us. *Please come again!*

Design

We devided our car design in to 2 parts

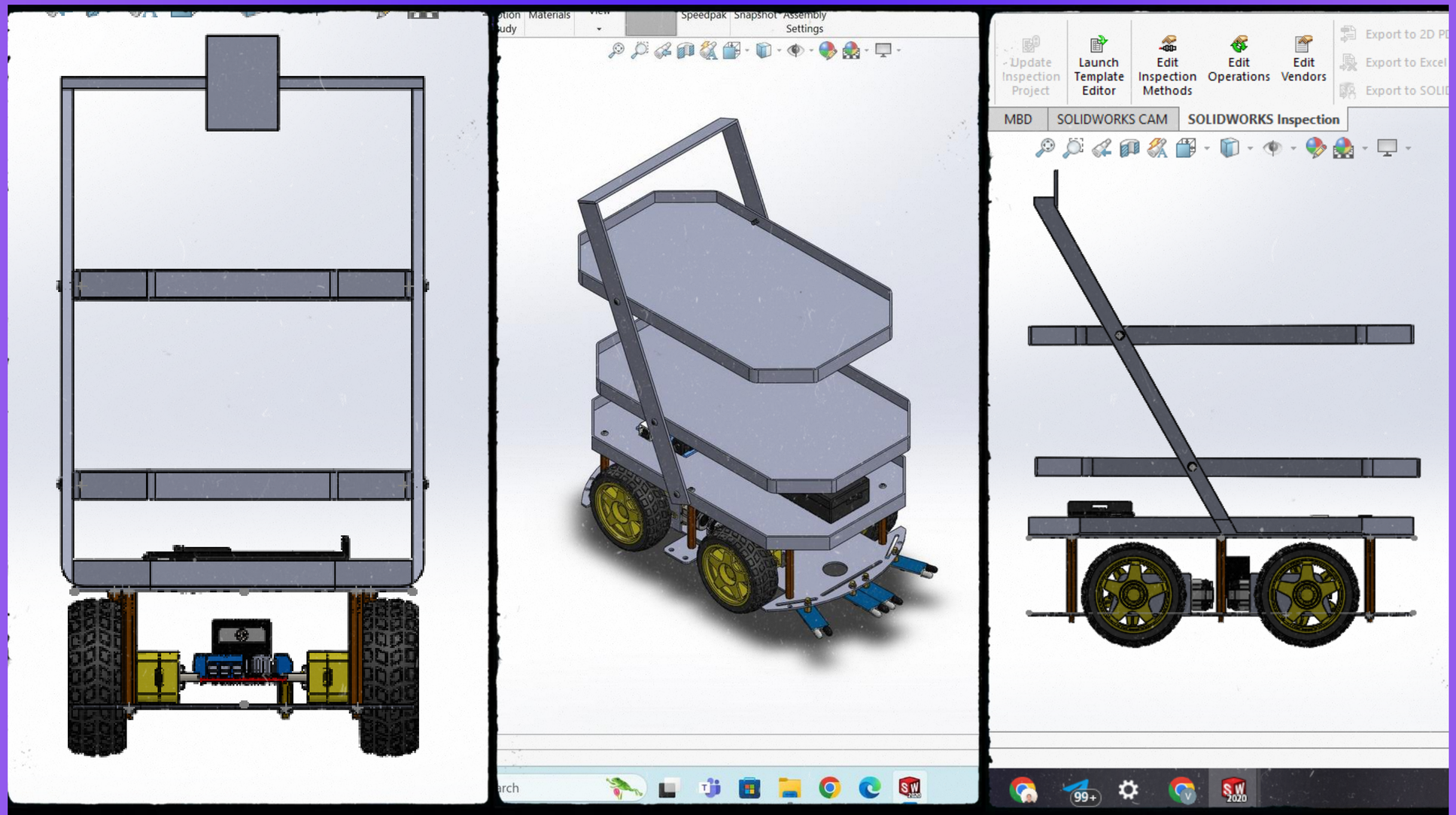
Robot



APP

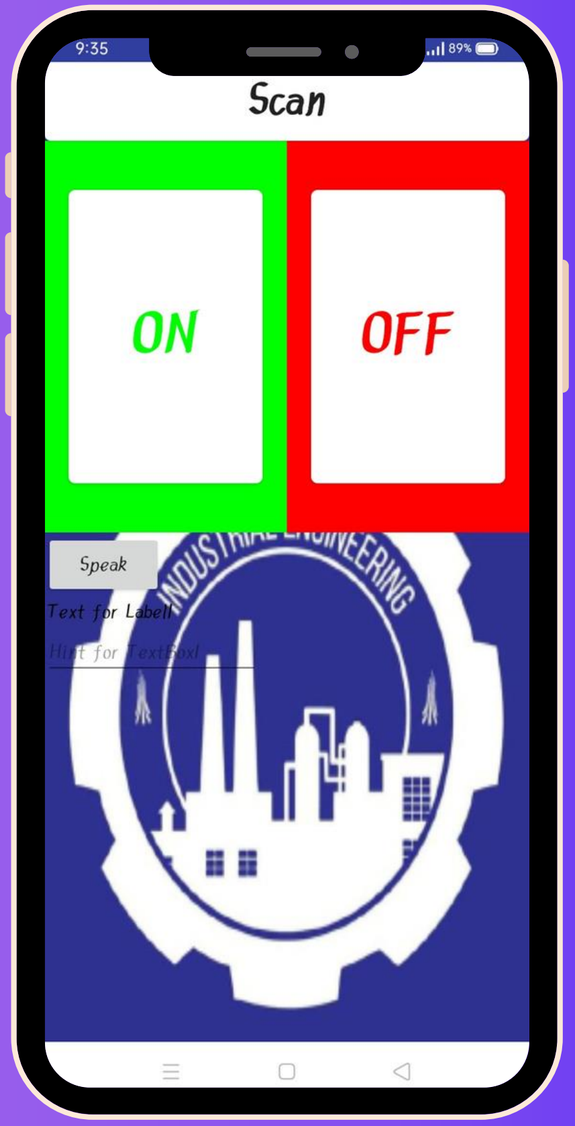
Design

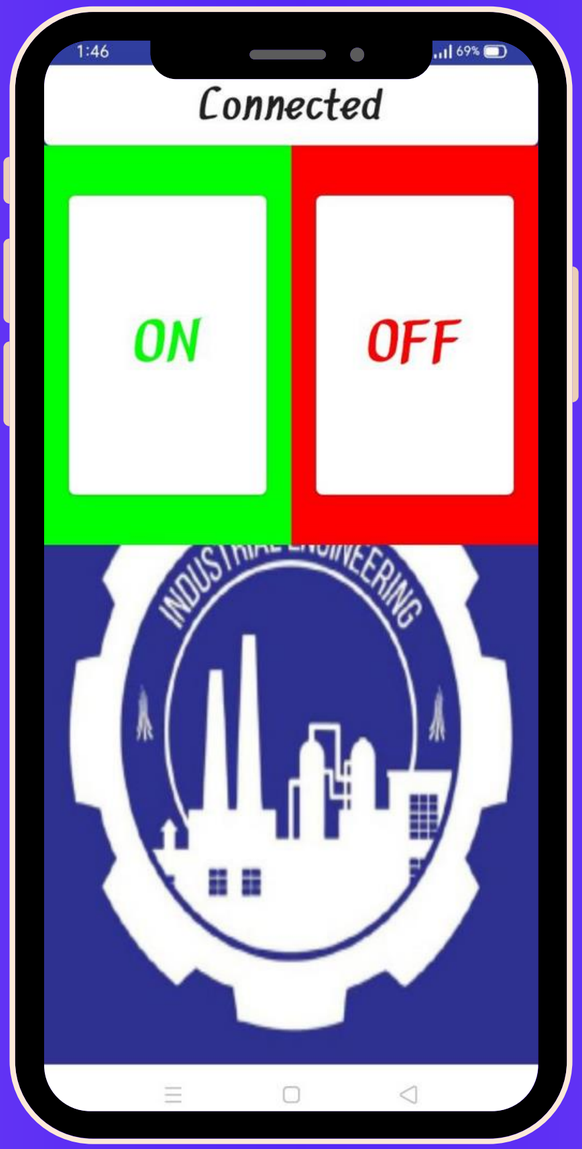
Robot

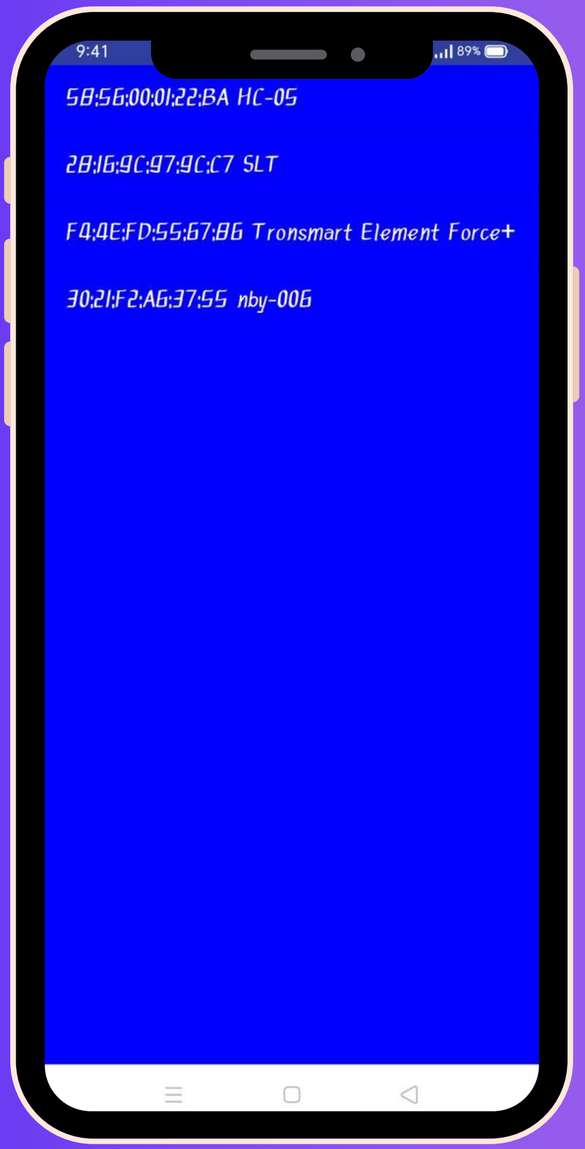


Design

APP


9:35
89%
Scan
ON
OFF
Speak
Text for Label1
Hint for TextBox1


1:46
69%
Connected
ON
OFF


9:41
89%
58:56:00:01:22:BA HC-05
28:16:9C:97:9C:C7 SLT
F4:4E:FD:55:67:86 Tronsmart Element Force+
30:21:F2:A6:37:55 nby-006

Process

Board

Drawing

Welding,
Machining,
Bending

Assembly

Brain

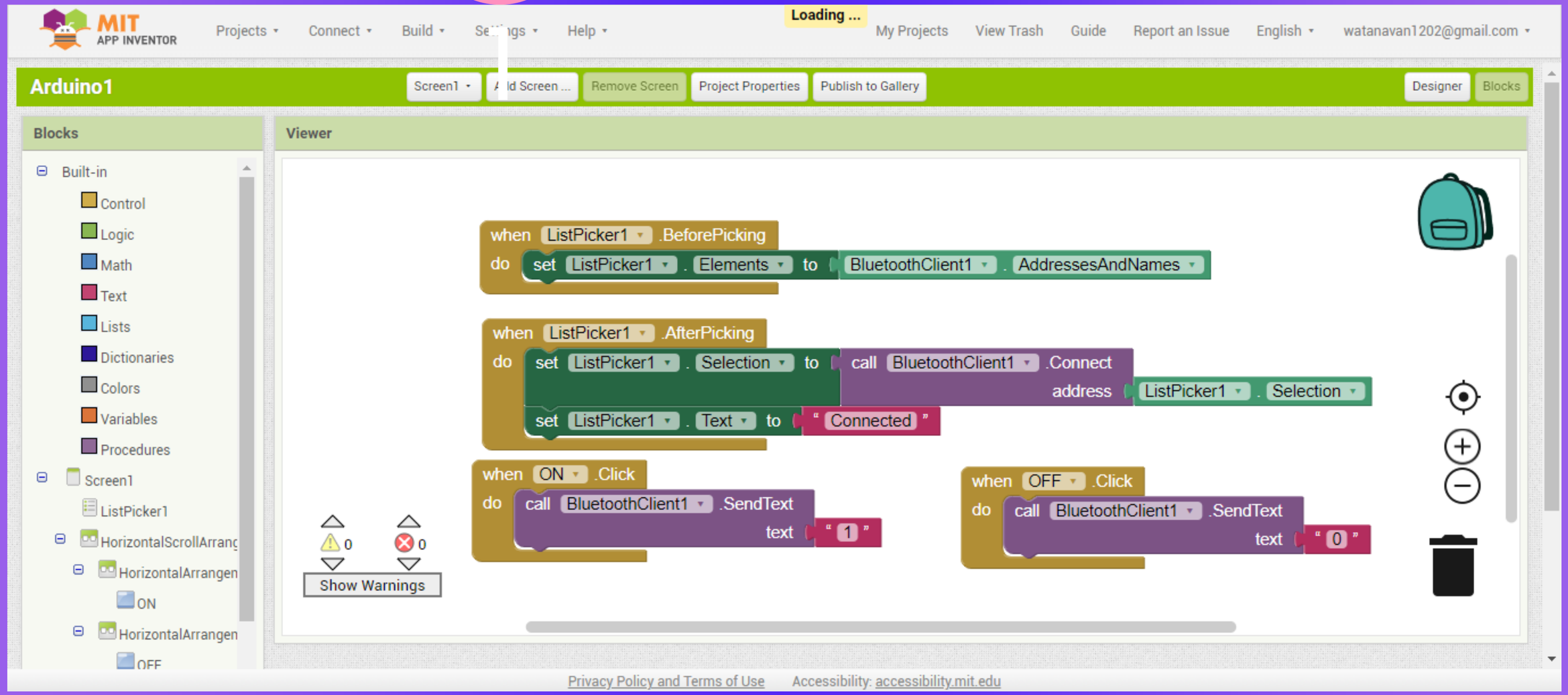
Arduino-code

App-code

IR-code

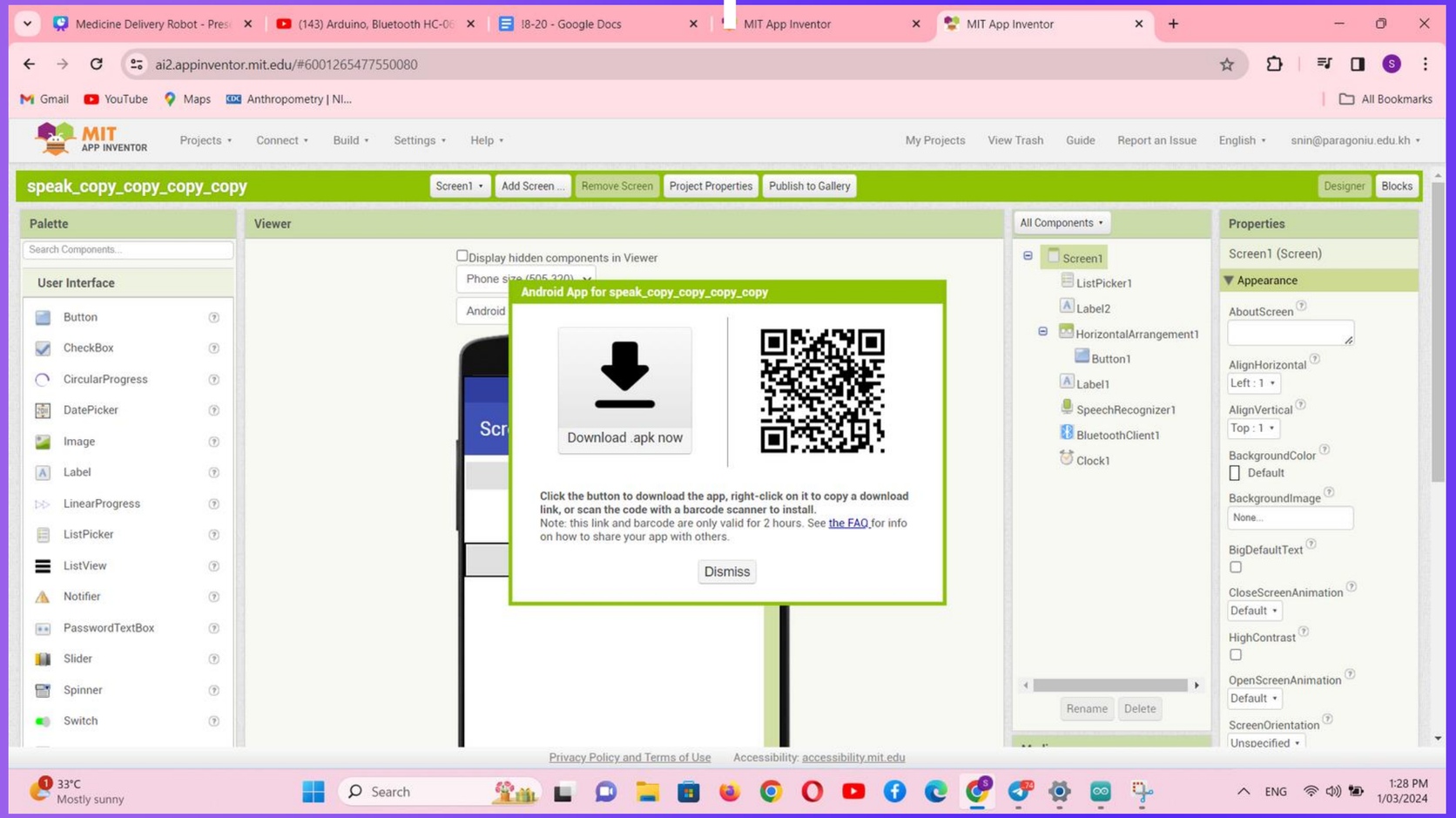
App 0

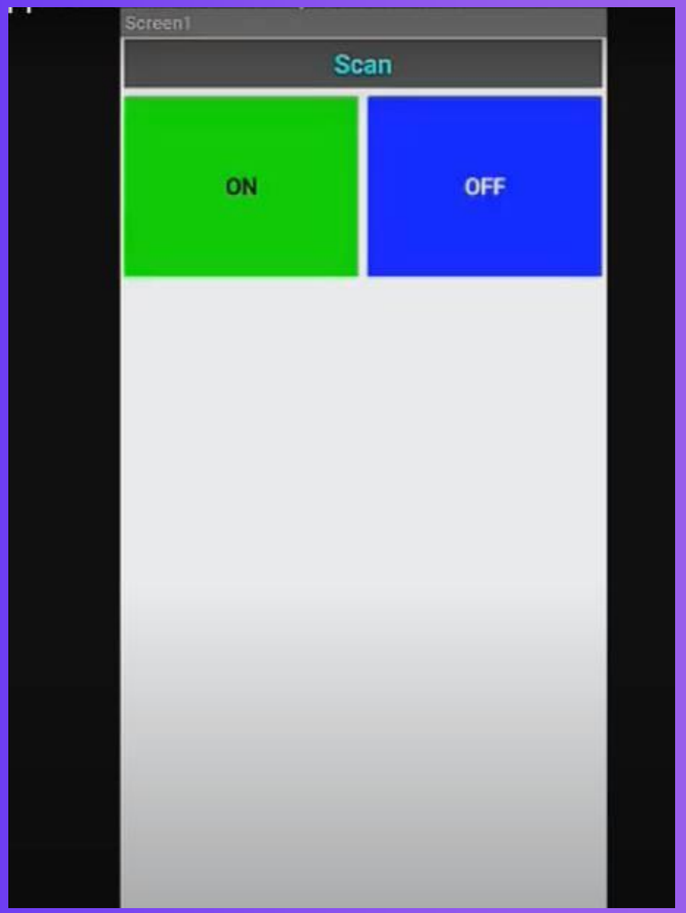
Process



App 01

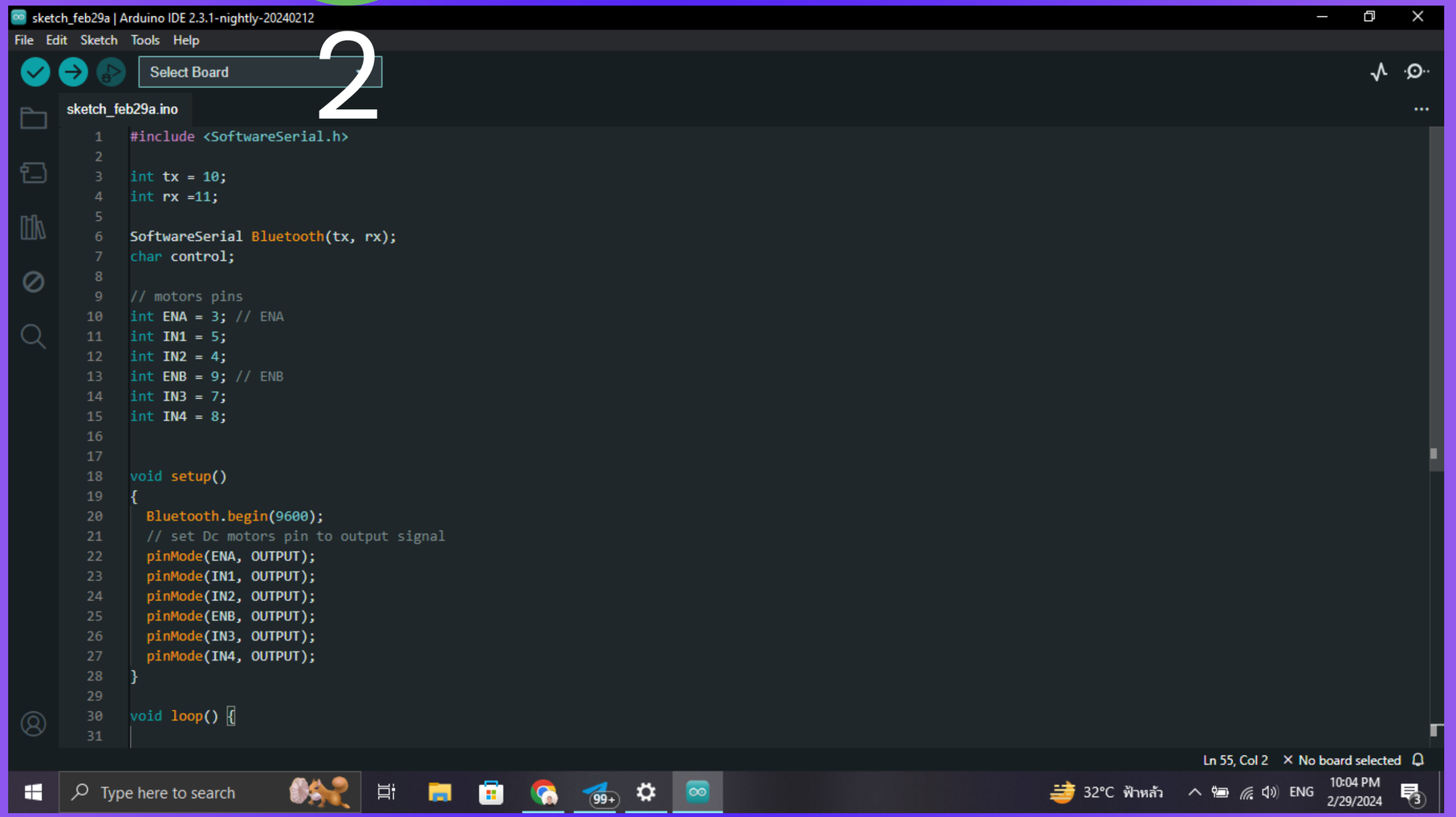
Process





Arduino 0

Process



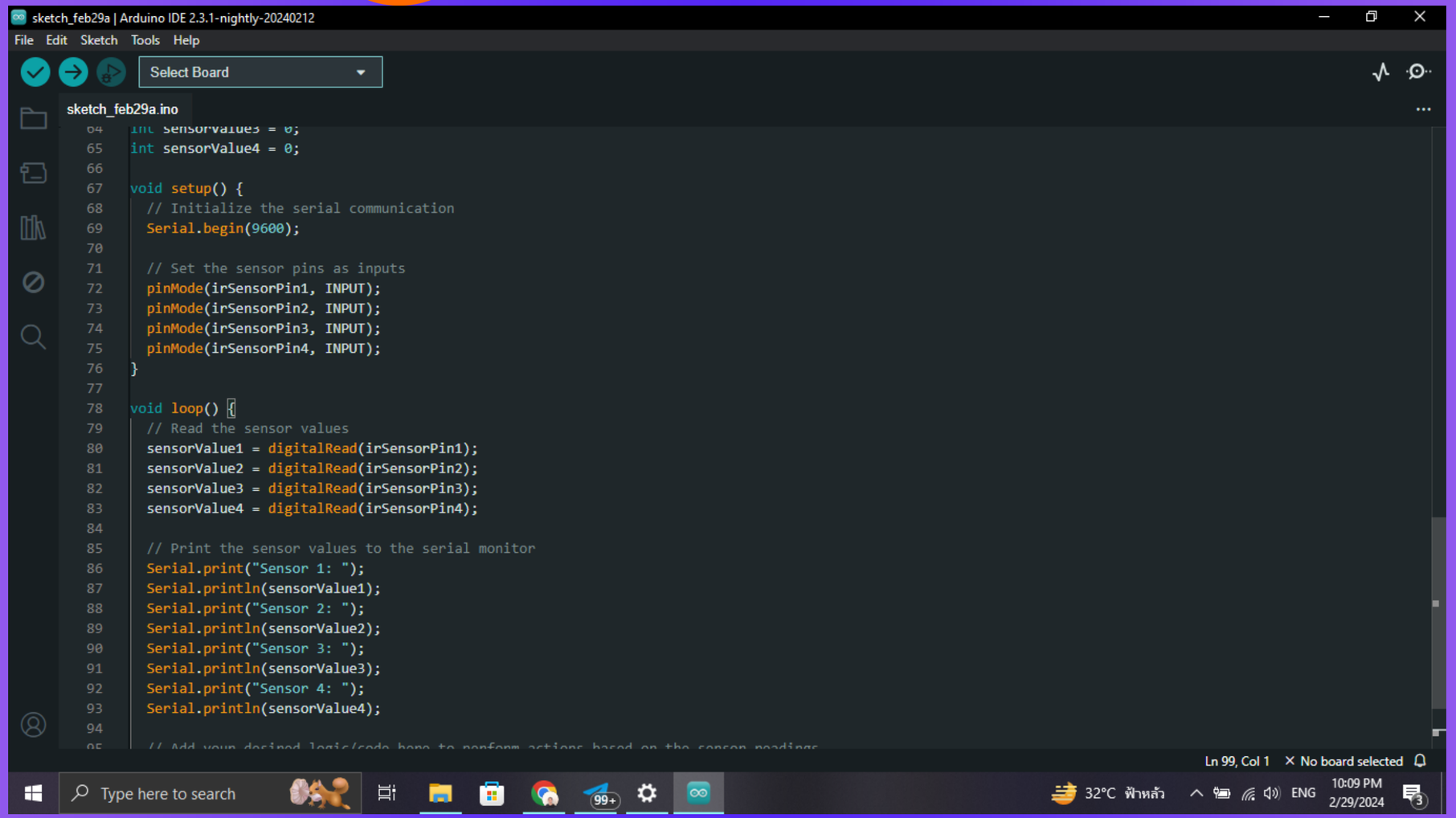
Arduino 0

Process

```
33    if(Bluetooth.available() > 0){
34      control = Bluetooth.read();
35      Bluetooth.print(control);
36    }
37    if(control == "1"){
38      // Read Dc motors values
39      digitalWrite(IN1, LOW);
40      digitalWrite(IN2, HIGH);
41      analogWrite(ENA, 255); // Full speed
42      digitalWrite(IN3, LOW);
43      digitalWrite(IN4, HIGH);
44      analogWrite(ENB, 255); // Full speed
45
46    }
47    if(control == "0"){
48      // Read Dc motors values
49      digitalWrite(IN1, HIGH);
50      digitalWrite(IN2, LOW);
51      analogWrite(ENA, 255); // Full speed
52      digitalWrite(IN3, HIGH);
53      digitalWrite(IN4, LOW);
54      analogWrite(ENB, 255); // Full speed
55    }
56  }
```

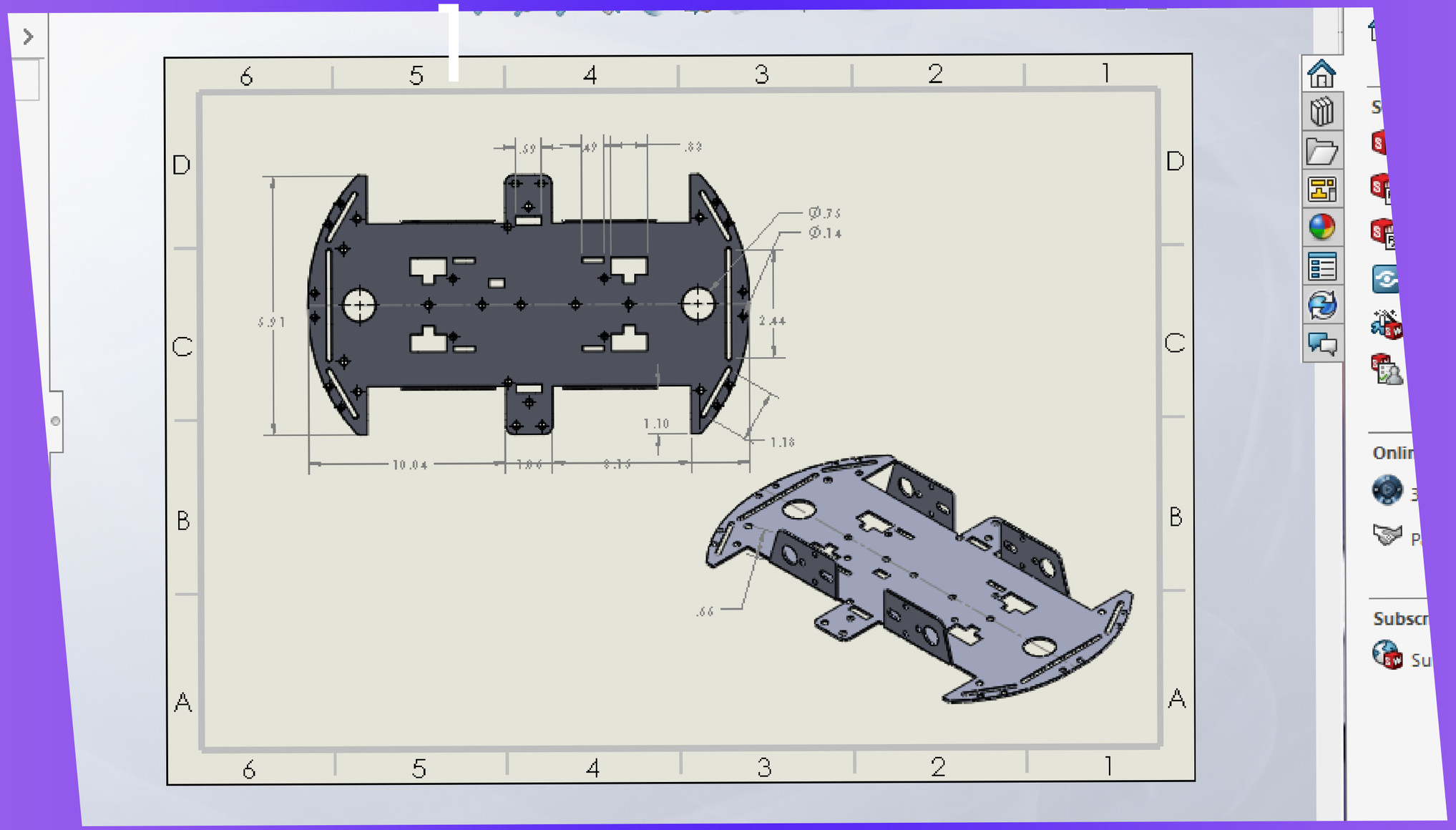
IR 03

Process



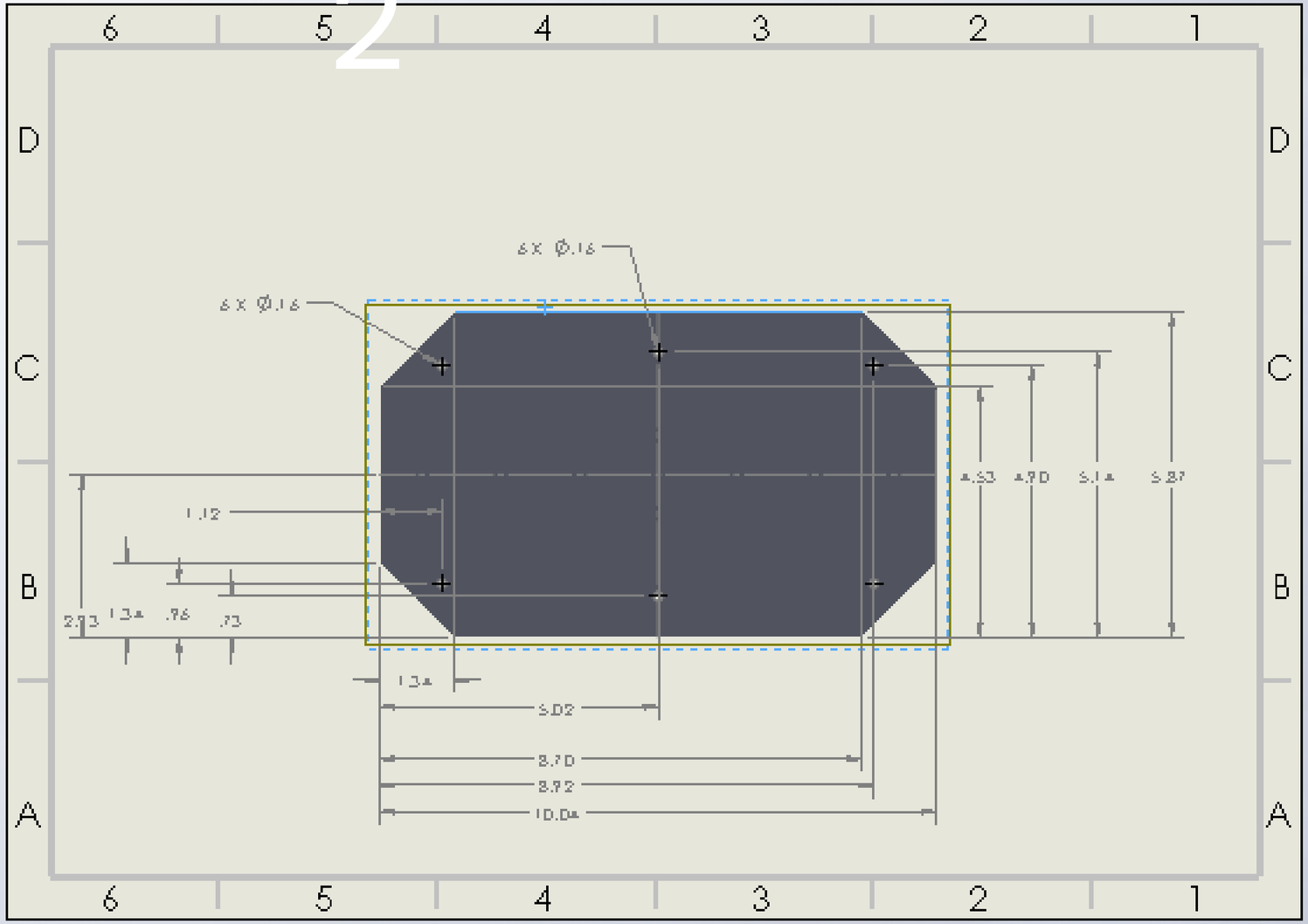
Drawing 0

Process



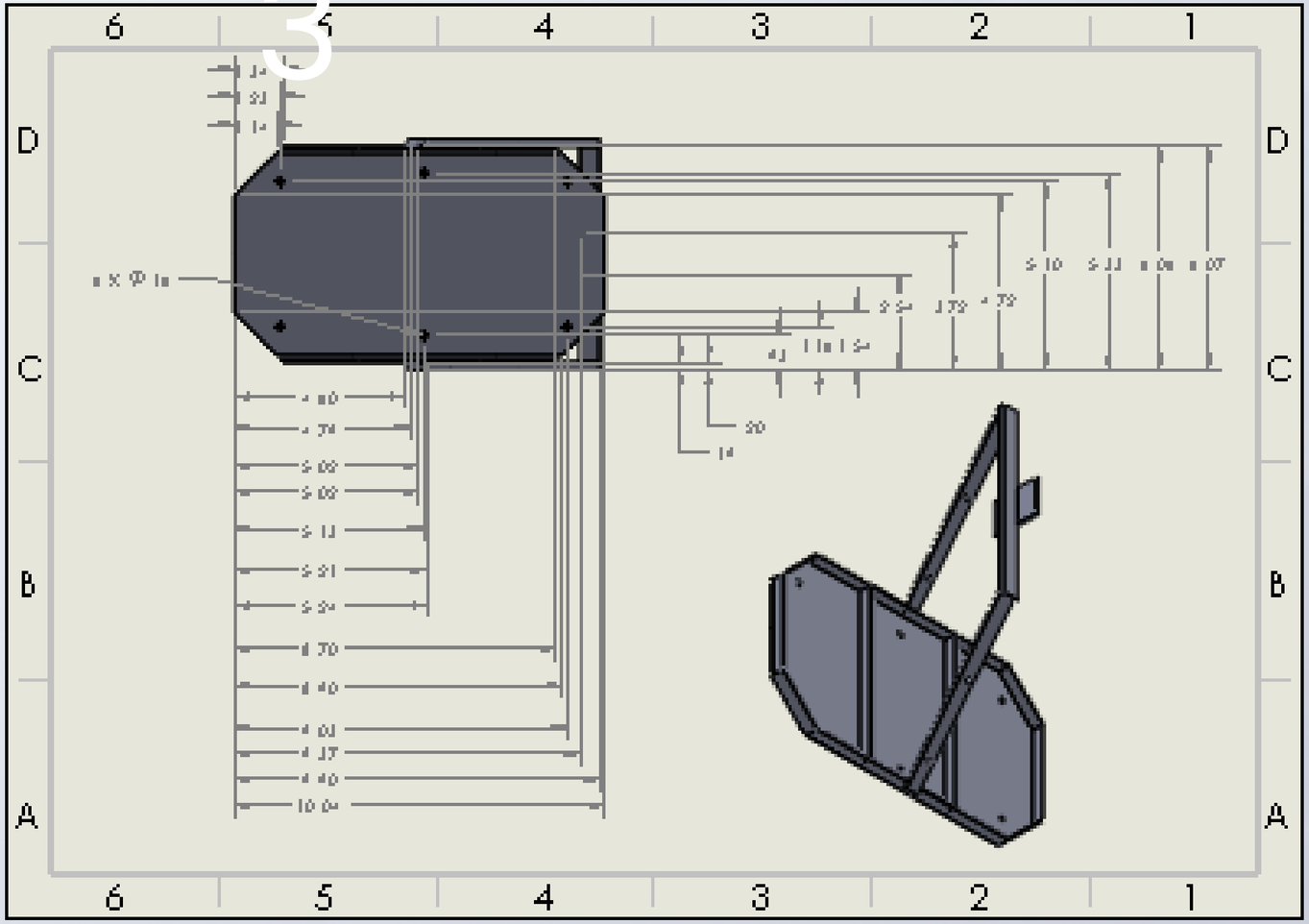
Drawing 0 2

Process



Drawing 0 3

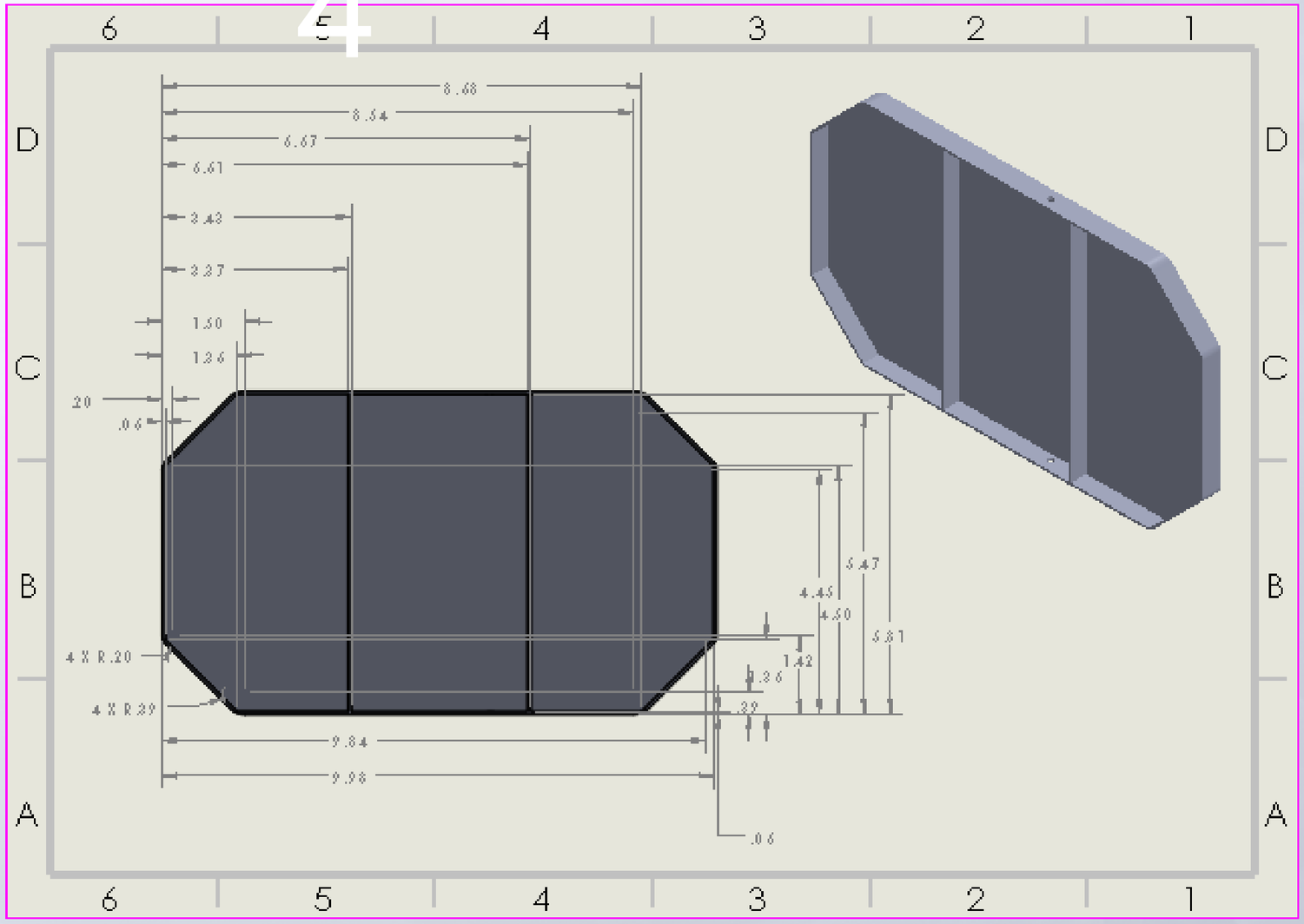
Process



Drawing 0

Process

4



Bending

0

1

Process

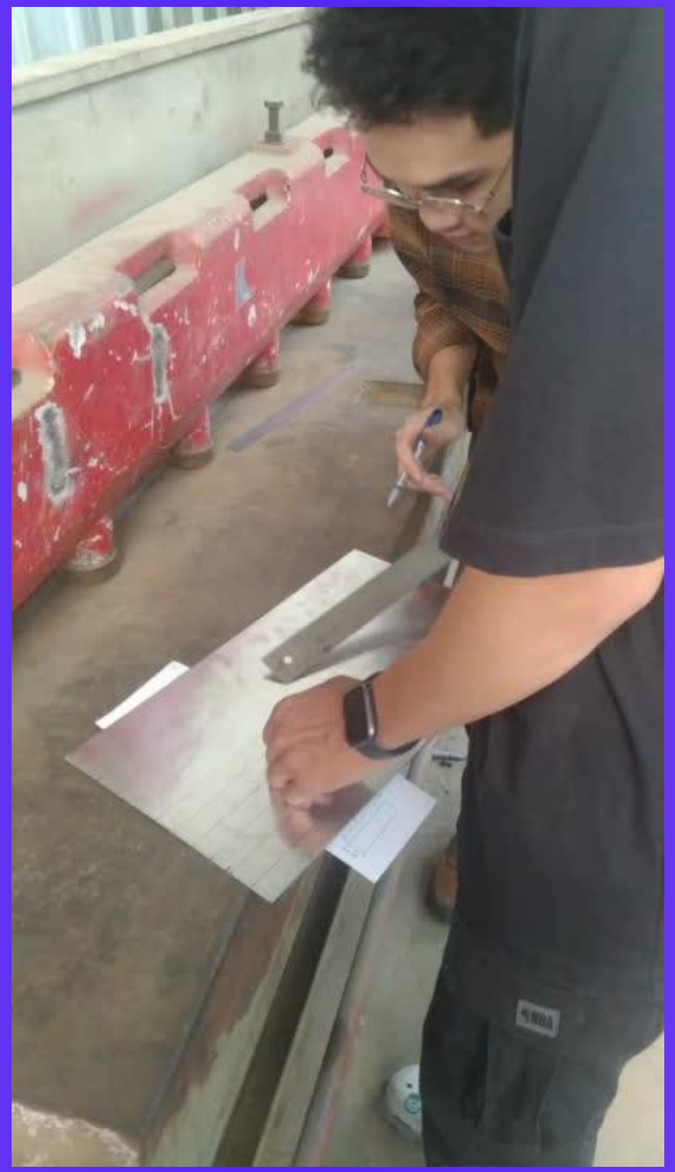
Drilling 0

Process

Process

Cutting

01

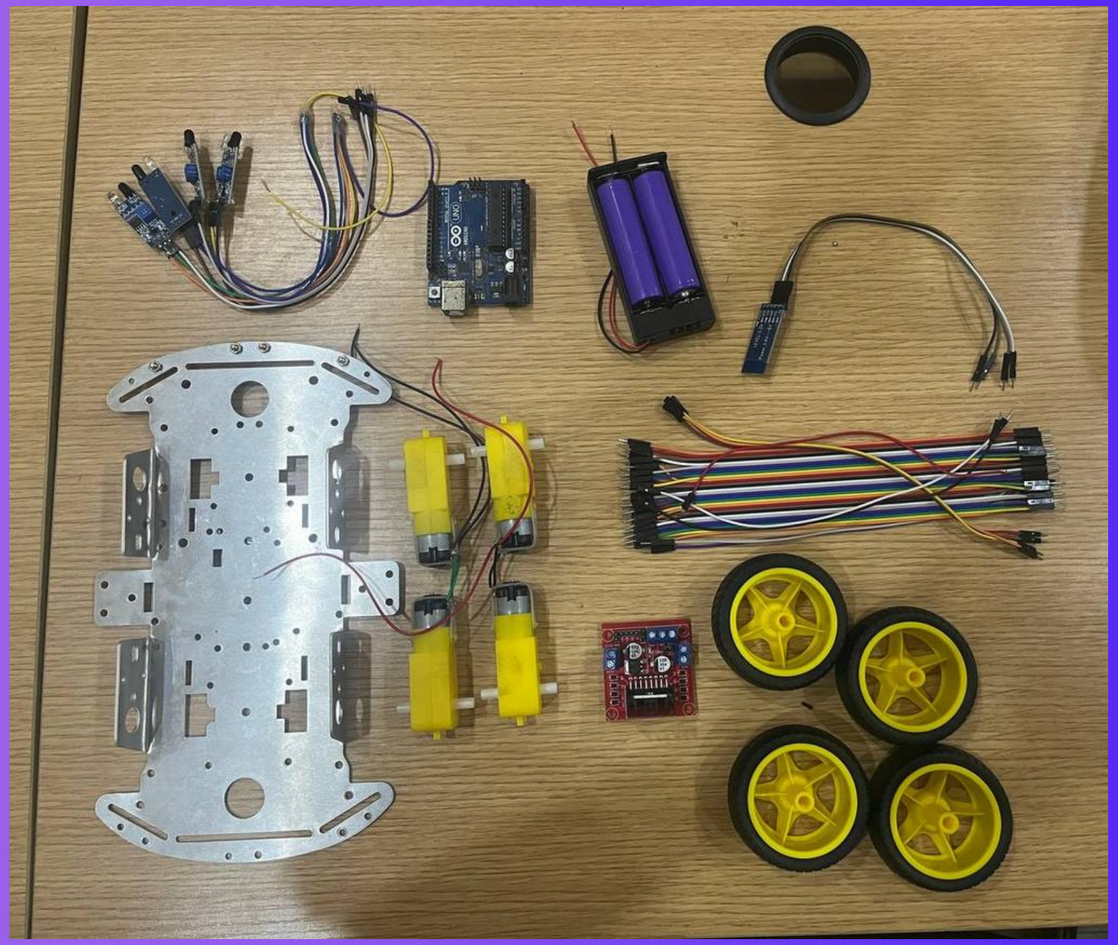


Welding 0

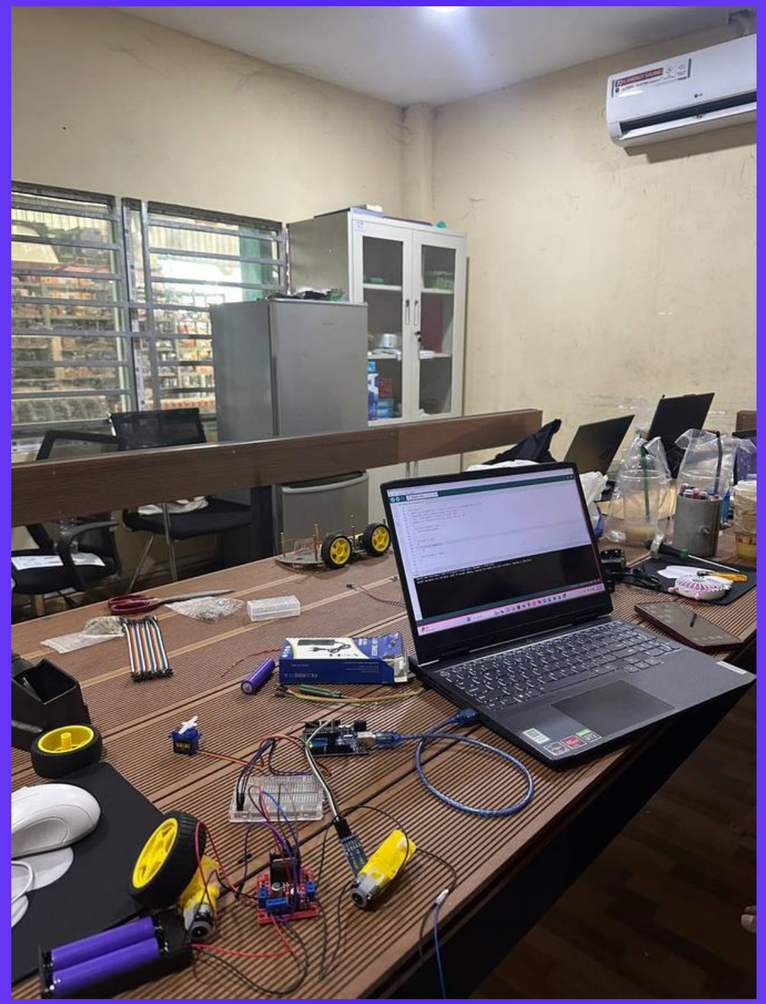
Process

1

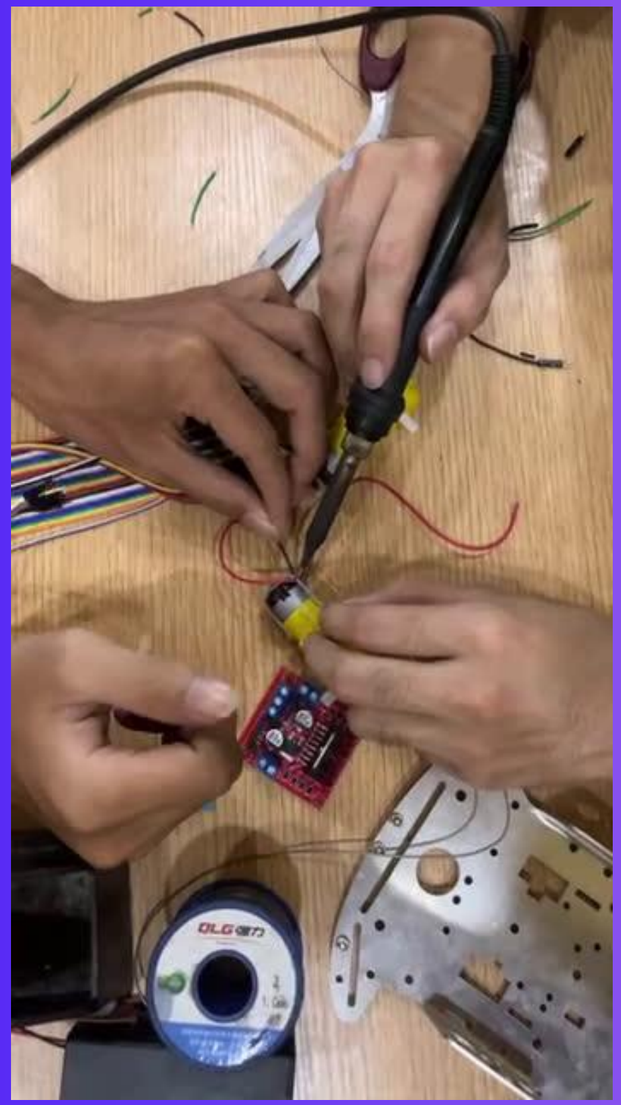
Set up



Set up



Set up



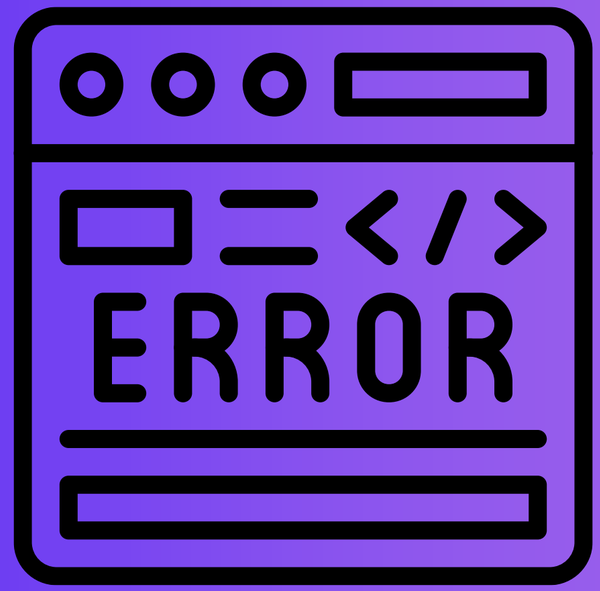
RESULTS

What we have learned

- Coding(Block/Arduino)
- Designing using SolidWorks
- Assembly using SolidWorks
- Cutting using machine
- Using bending machine
- Using hand drill machine
- Understanding the function of its components
- Wire connection
- Welding the electric wires

Challenge

- Coding: There are some mistakes we have made in the coding so we cannot enable the robot to work well especially when connecting using the bluetooth wireless.
- Practice cutting and bending machine for the first time.
- We have made 2 Arduino broken during our process of this project.
- So with these challenges we can improve ourselves and learn from our mistakes more during the next project.



Conclusion

- Thank you sir Dara for sponsoring us materials, labors, tools and equipment.
- And thanks to the staffs here for helping us with this project

RESOURCES LINKS

- MOBILE-SCISSOR-TABLES.CO.UK
- HTTPS://WWW.DFROBOT.COM/BLOG-553.HTML
- HTTPS://WWW.LINKEDIN.COM/PULSE/UAE-INCREASING-USE-ROBOTICS-HEALTHCARE-GOOD-FAST-COMPANY-ME
- HTTPS://YUJINROBOT.COM/EN/RESOURCE/BLOG/BLOG/HOW-HOSPITALS-CAN-BENEFIT-FROM-A-ROBOTIC-DELIVERY-SYSTEM#:~:TEXT=HOSPITAL%20ROBOTIC%20DELIVERY%20SYSTEMS%20ARE,HOSPITAL%20OPERATIONS%20CAN%20CONTINUE%20EFFICIENTLY.

thank you!