INTRODUCTION TO AI
MINI PROJECT

NONG POOKPUI

#Group 2

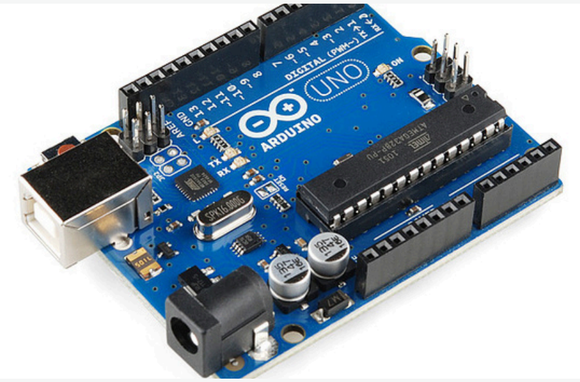
PROJECT PLANNERS

Project Manager : 65110131 Akesit Akkharasaksiri 65110141 Kunlanith Busabong 65110143 Pann Punyajaray 65110141 Paveetida Tiranatwittayakul	65110149 Rattapol Kitirak 65110150 Saranya Vichakyotin 65110153 Suchaya Tirapongporn 65110156 Theedhat Chankrut	**Project Objective** : Use AI to drive the car

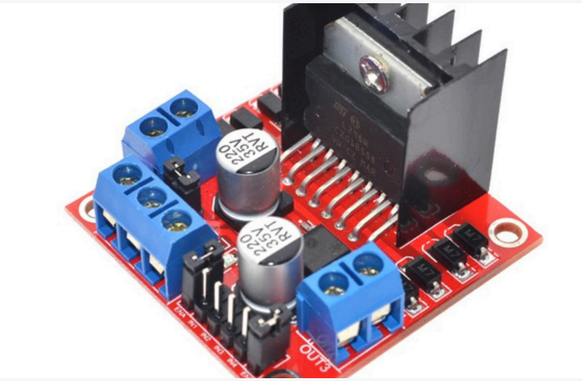
Collaborative Owners and Helpers	Major Tasks	Date									
		03/02	07/02	09/02	10/02	13/02	15/02	17/02	20/02	22/02	24/02
(Theedhat, Kulanith)	1. Research	☑	☐	☐	☐	☐	☐	☑	☑	☐	☐
(Theedhat, Pann)	2. Discuss and list all components	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐
(Pann, Paveetida)	3. Buy materials at Ban Moh	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐
(Saranya)	4. Design and laser cut robot chassis	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐
(Rattapol, Saranya, Suchaya)	5. Assembling and connecting circuit	☐	☐	☐	☑	☑	☐	☐	☐	☐	☐
(Akesit)	6. Coding robot direction movement	☐	☐	☐	☑	☑	☐	☐	☐	☐	☐
(Rattapol)	7. Tuning arduino board with python code	☐	☐	☐	☑	☑	☑	☐	☐	☐	☐
(Akesit, Rattapol)	8. Training OpenCV hand dataset	☐	☐	☐	☐	☐	☑	☑	☑	☐	☑
(Paveetida, Suchaya)	9. Decorate the robot	☐	☐	☐	☐	☐	☐	☑	☐	☑	☑
(Saranya, Kunlanith)	10. Making presentation slides	☐	☐	☐	☐	☐	☐	☑	☑	☑	☑

	Budget	Quantity	Price/unit	Price
	- Mecanum Wheels	4	137.5	550
	- Motor Driver L298N	2	70	140
	- DC Motor 288:1	5	60	300
	- Battery 7.4V 3000 Mah	1	-	250
	- Decorations	6	-	58
	- Acrylic Plate 30x40	1	-	135
	Total :	**19 Items**	**1433 Baht**	

MATERIALS



ARDUINO UNO



MOTOR DRIVER
L289N *2

DC MOTOR *4
120:1

MECANUM
WHEELS *4

MATERIALS

NUTS AND SCREW 3M

ACRYLIC BOARD 5MM

RECHARGABLE LITHIUM ION BATTERY

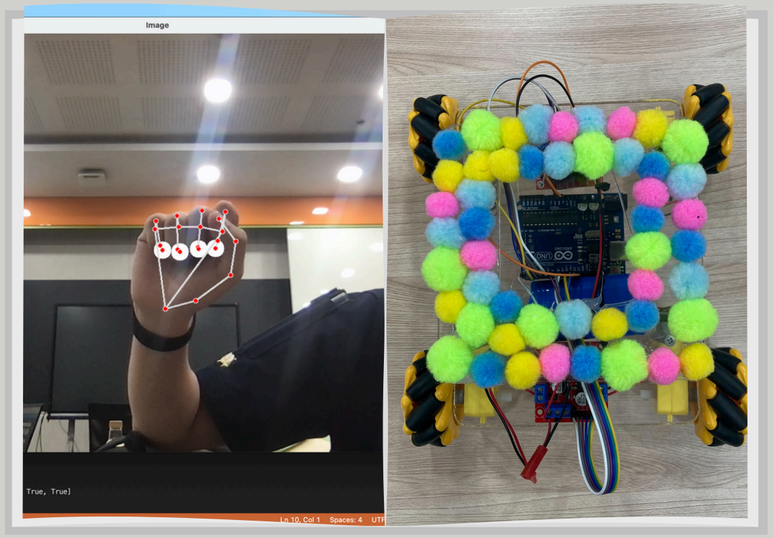
JUMPER WIRES

HOW IT WORKS?

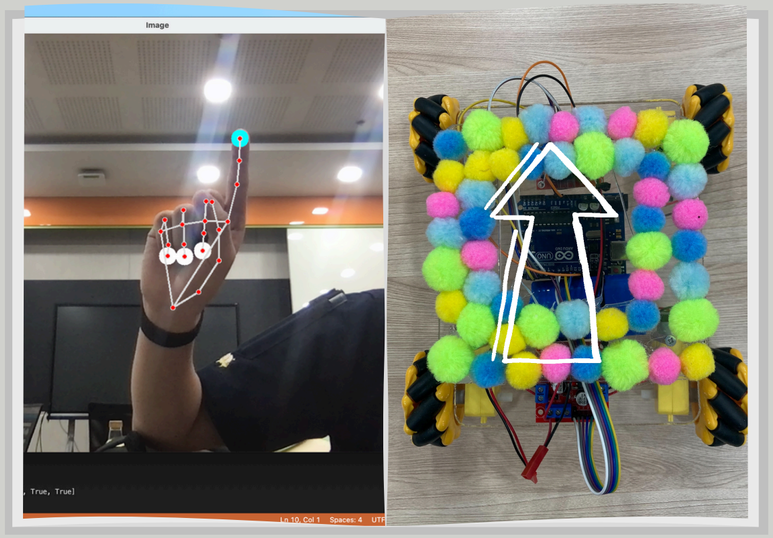
Code workflow

- Import the essential libraries (Mediapipe, Serial, CV2, Time)
- Setting up the camera
- Configures the hand detection model
- Sets up the finger tip and thumb tip landmarks
- In a loop, it reads frames from the camera, detects hands, and gets the landmarks of the hands.
- It calculates the positions of the finger tips and determines if the fingers are folded or not.
- Based on the finger fold status and the position of the thumb tip, it sends commands to the connected device.
- It displays the camera feed with the detected hand landmarks and also showing the FPS (fram rate per second).
- After calculating the positions, receiving a total of 9 different signals (0-8) that will be sent to the arduino to control the motor

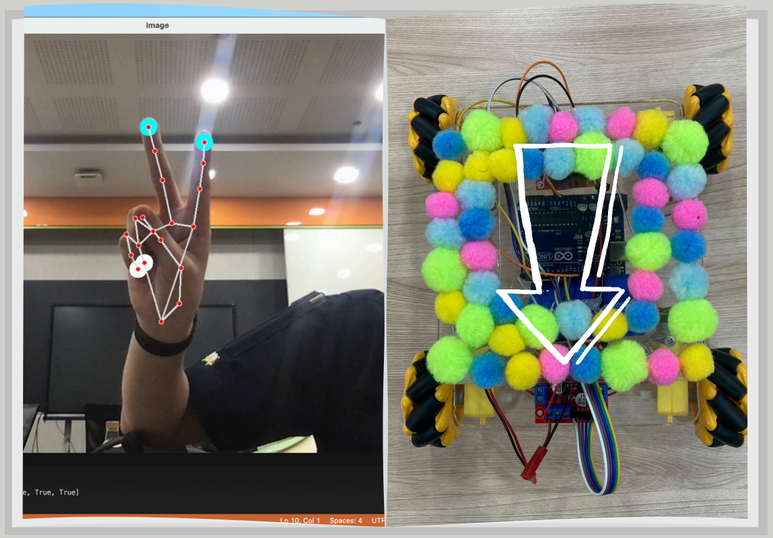
PERFORMANCE



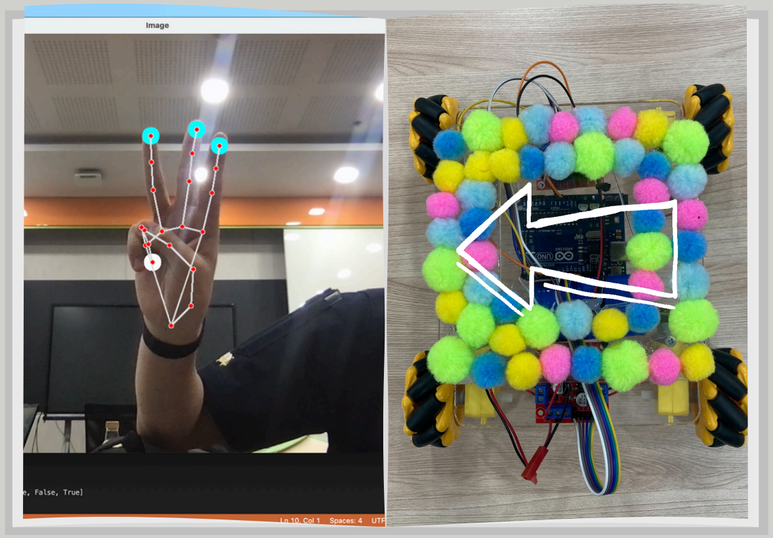
signal : 0
stop



signal : 1
forward

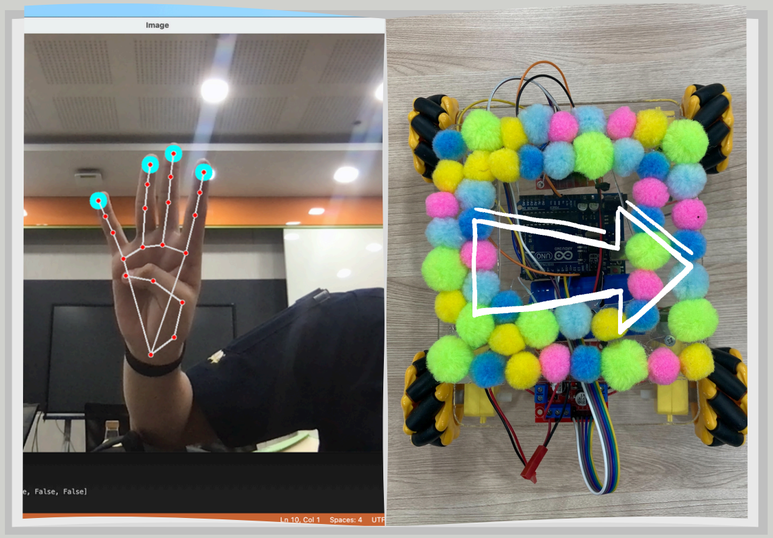


signal : 2
backward

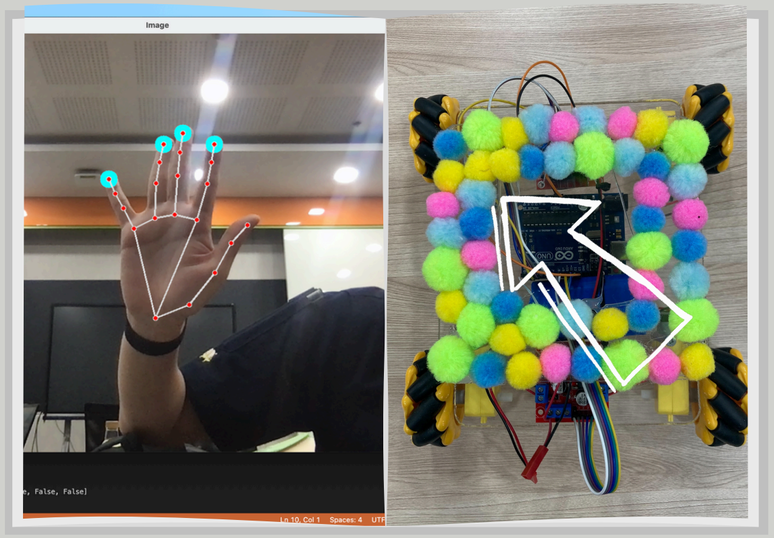


signal : 3
slight left

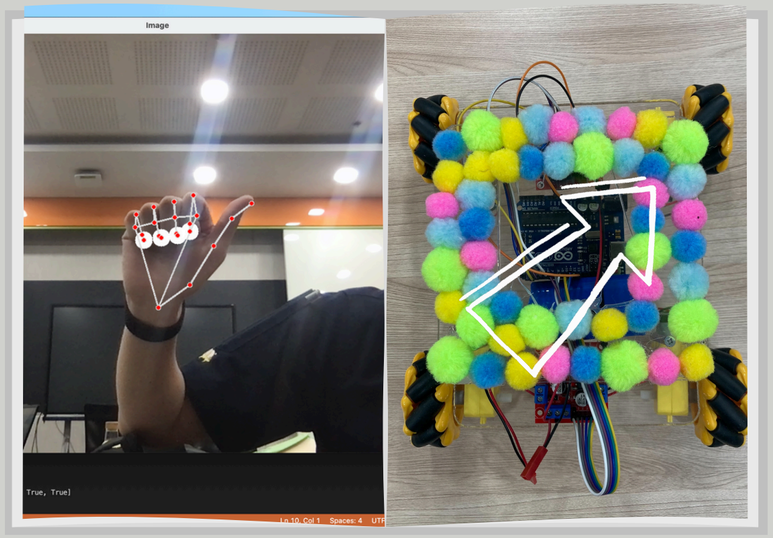
PERFORMANCE



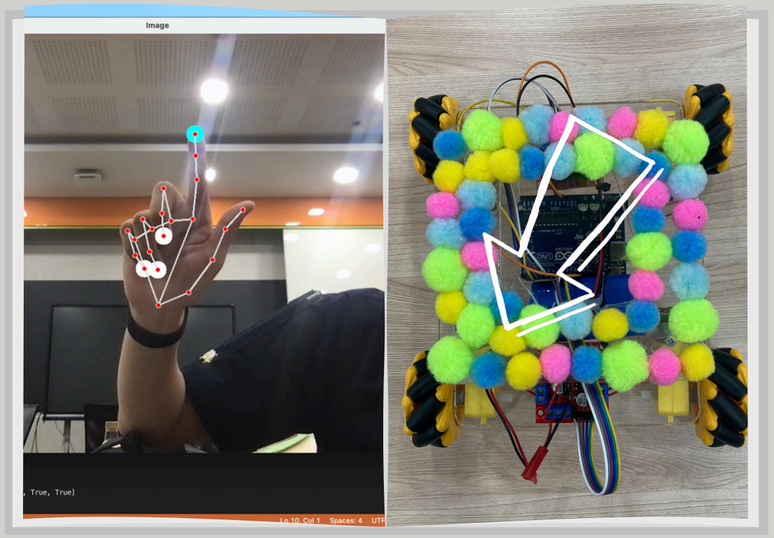
signal : 4
slight
right



signal : 5
front
slight
left

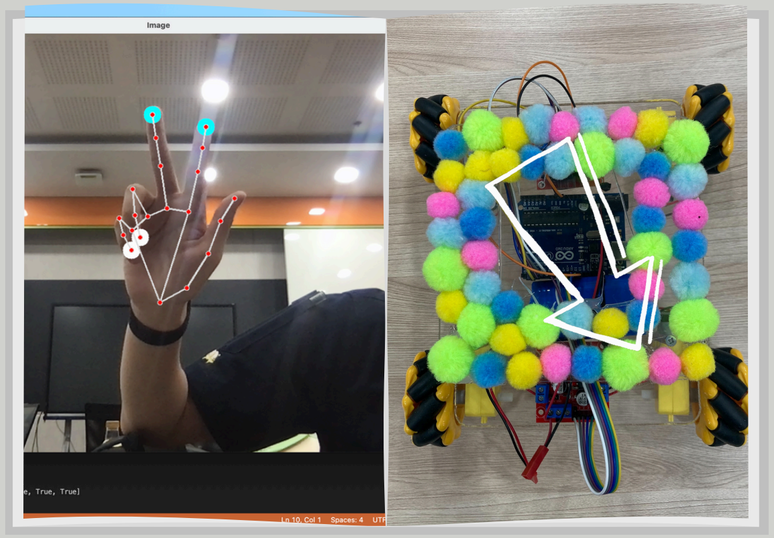


signal : 6
front
slight
right



signal : 7
back
slight
left

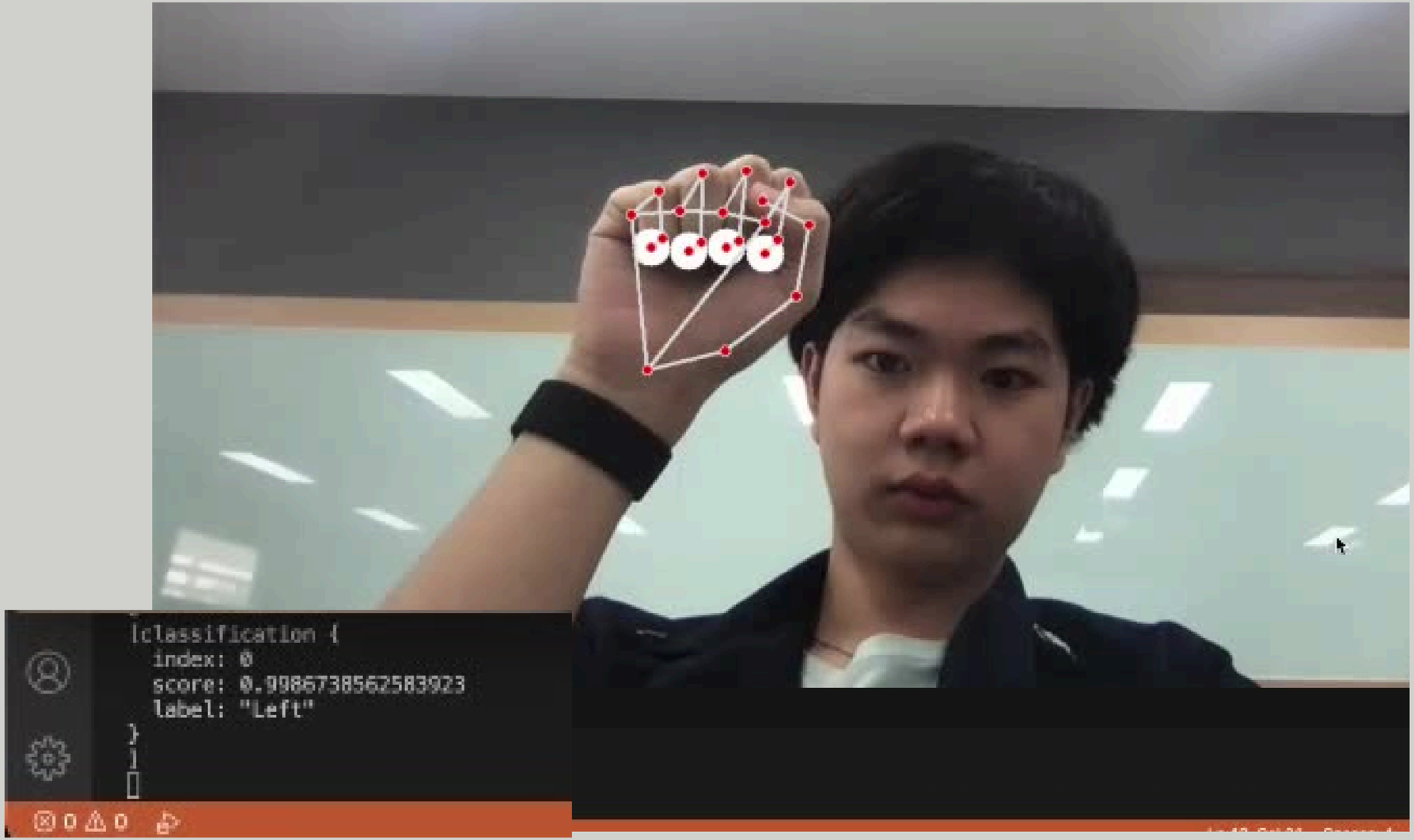
PERFORMANCE



signal : 8
back slight right

CONFIDENCE

confidence score is around 95-99%



ANALYZE

ERROR

- The Arduino cannot recieve the data in real-time.
- The outcome not stable and not immediately as it should be.
- 1 Broken motor
- Teachable machine cannot be used (not precise), we use media pipe instead.
- At first when we can’t connect arduino and python because it use same port.

THEORY

- Microcontroller Board (Arduino UNO)
- Motor Controller (Motor Driver)
- Library (Serial / MediaPipe / Time / CV2)

THANK YOU FOR LISTENING!