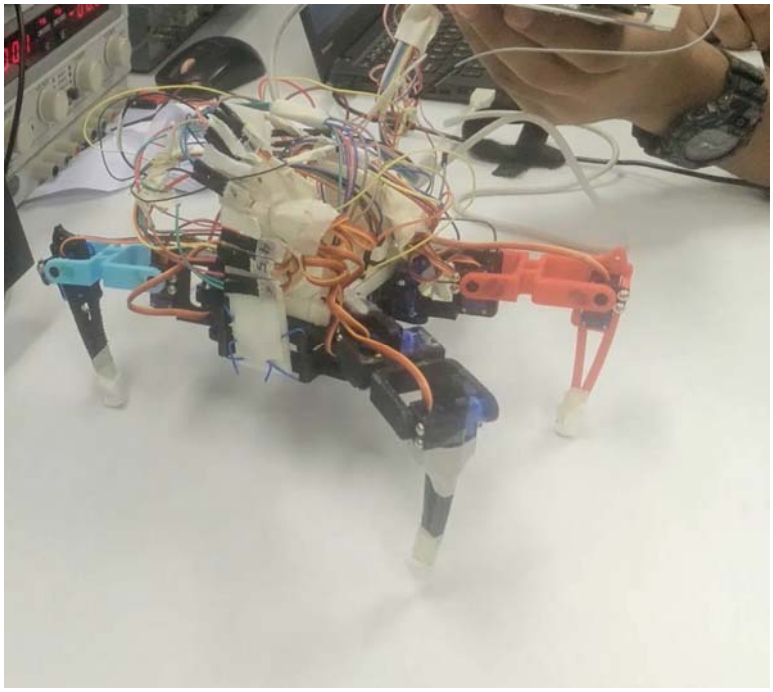
ELEC 3300 Project Summary Sheet

This is a ONE Page Summary Sheet, Content more than 1 page will be deleted.
All the fonts used in this Sheet should be in Times New Roman at 12 points

Group Number	1
Project Title	Android Phone controlled Quadroped robot
Name of Student 1	Abhro Roy
Name of Student 2	Arvind Iyer

Please attach ONE photo of your project here



Please list the functions of your project in point form

- Our Project is a 4-legged robot using 12 SG-90 servos(3 per leg) in total for motion
- It uses a bluetooth module HC05 to receive commands for the type of motion
- An Android App from an Android Phone is used to send commands to the robot
- The robot can (i)walk forward, (ii)crawl leftward, (ii)crawl rightward, (iii)do pushups, (iv)turn anti-clockwise, (v)turn clockwise, and (vi) walk backwards
- The mechanical parts were 3D Printed using the printers in the Library and the Engineering Commons
- The Ultrasonic Sensor gives us the distance of obstacles in front of the Robot
- LCD Screen used for displaying status messages and sensor readings

ELEC 3300 Project Summary Sheet

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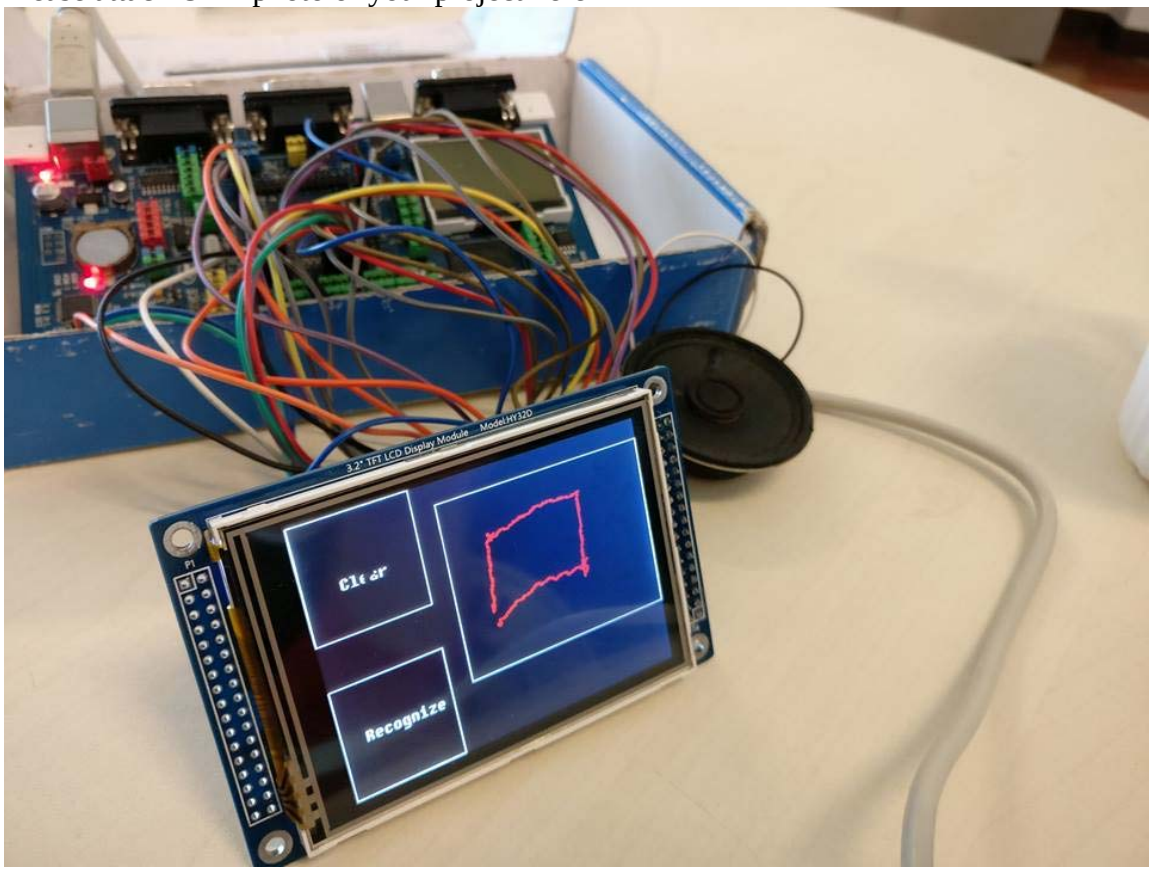
Group Number	2
Project Title	Shape-recognition juke box
Name of Student 1	EGGERS Michael Stefan
Name of Student 2	WU Yu

Please attach ONE photo of your project here



Please list the functions of your project in point form

- Calibrate the display after startup by pressing the 3 crosses on the screen.
- Draw a shape inside the dedicated box, like the red square in the picture.
- Push the button “recognize” in order to process the shape.
- After that the speaker will generate a sound
- Push “clear” to start over.

ELEC 3300 Project Summary Sheet

This is a ONE Page Summary Sheet, Content more than 1 page will be deleted.
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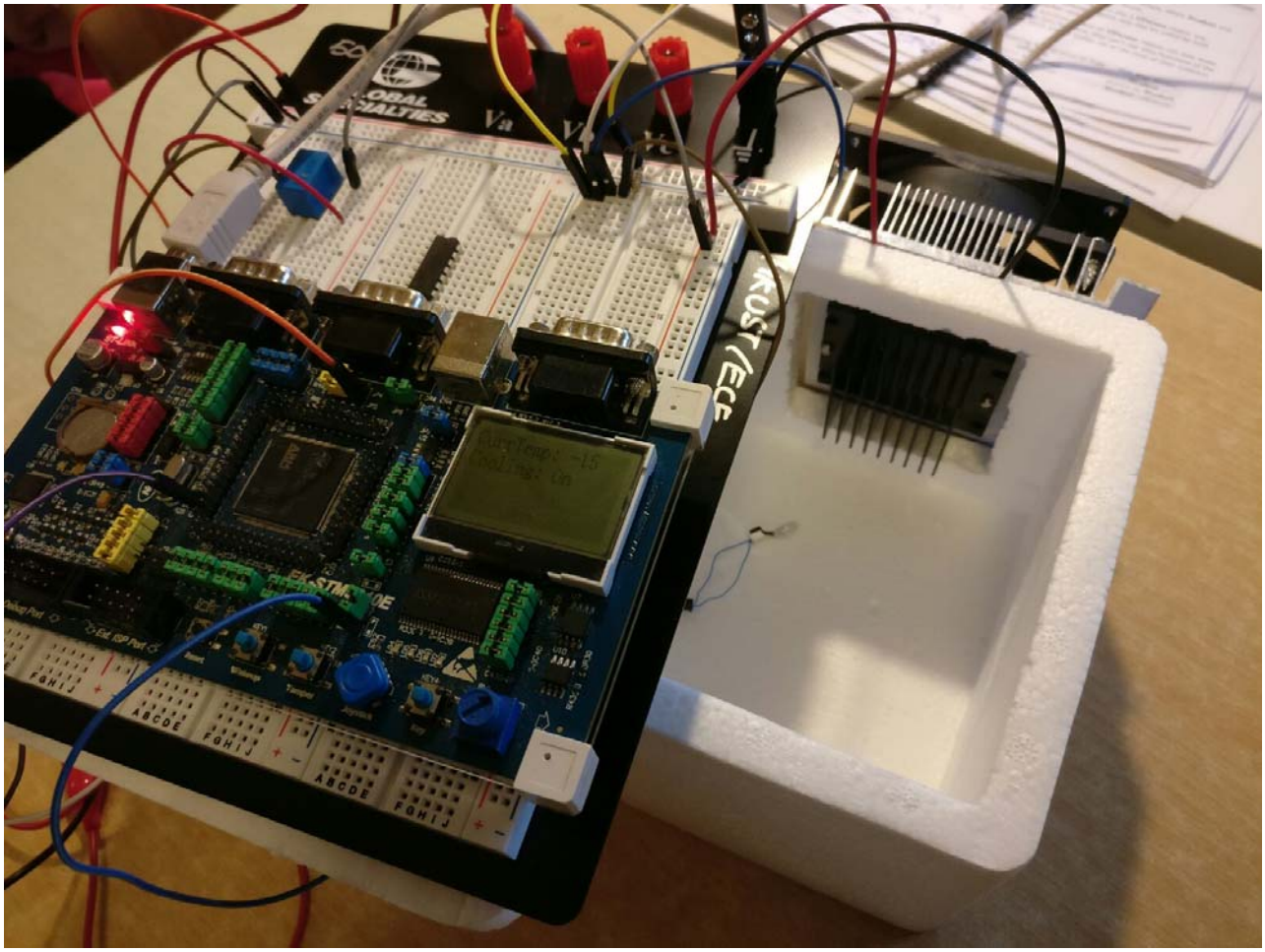
Group Number	Group 3
Project Title	Portable Fridge
Name of Student 1	Chan Harvey
Name of Student 2	Wong Cheuk Yie Ezekiel

Please attach ONE photo of your project here



Please list the functions of your project in point form

- Record and display the current temperature inside the fridge
- Decide the on-off state of the cooling module
- Three mode to be set by the user:
    - Fully auto: The fridge will freeze to a default temperature automatically
    - Semi-auto: The fridge will freeze to a set temperature
    - Manual: The cooling module will operate according to the user's setting

ELEC 3300 Project Summary Sheet

This is a ONE Page Summary Sheet, Content more than 1 page will be deleted.
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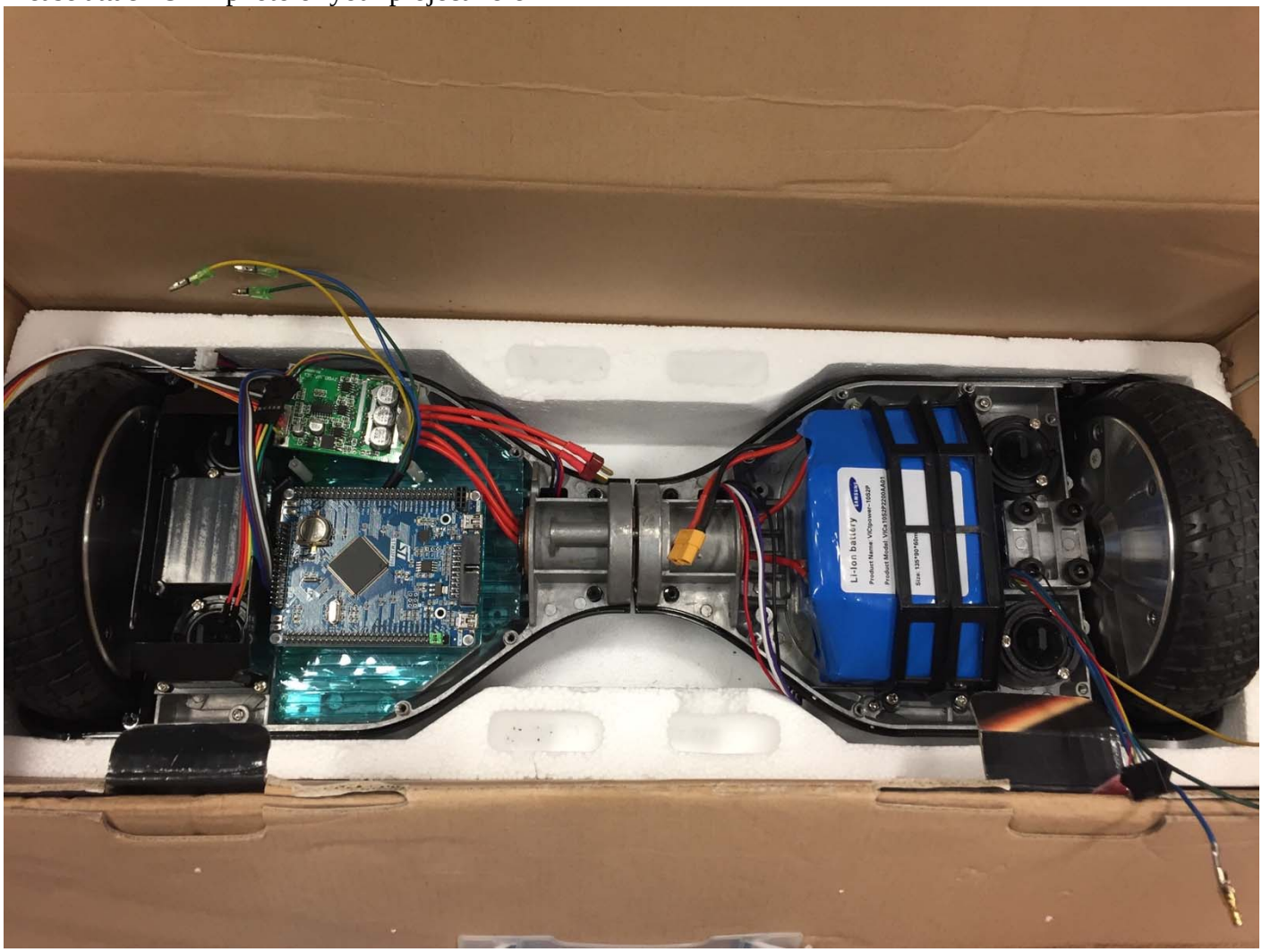
Group Number	4
Project Title	Self balancing scooter
Name of Student 1	Kwan Ho Man
Name of Student 2	Lau Chun Kit

Please attach ONE photo of your project here



Please list the functions of your project in point form

- Self balancing with movement
- Bluetooth connection
- Load detection

ELEC 3300 Project Summary Sheet

This is a ONE Page Summary Sheet, Content more than 1 page will be deleted.
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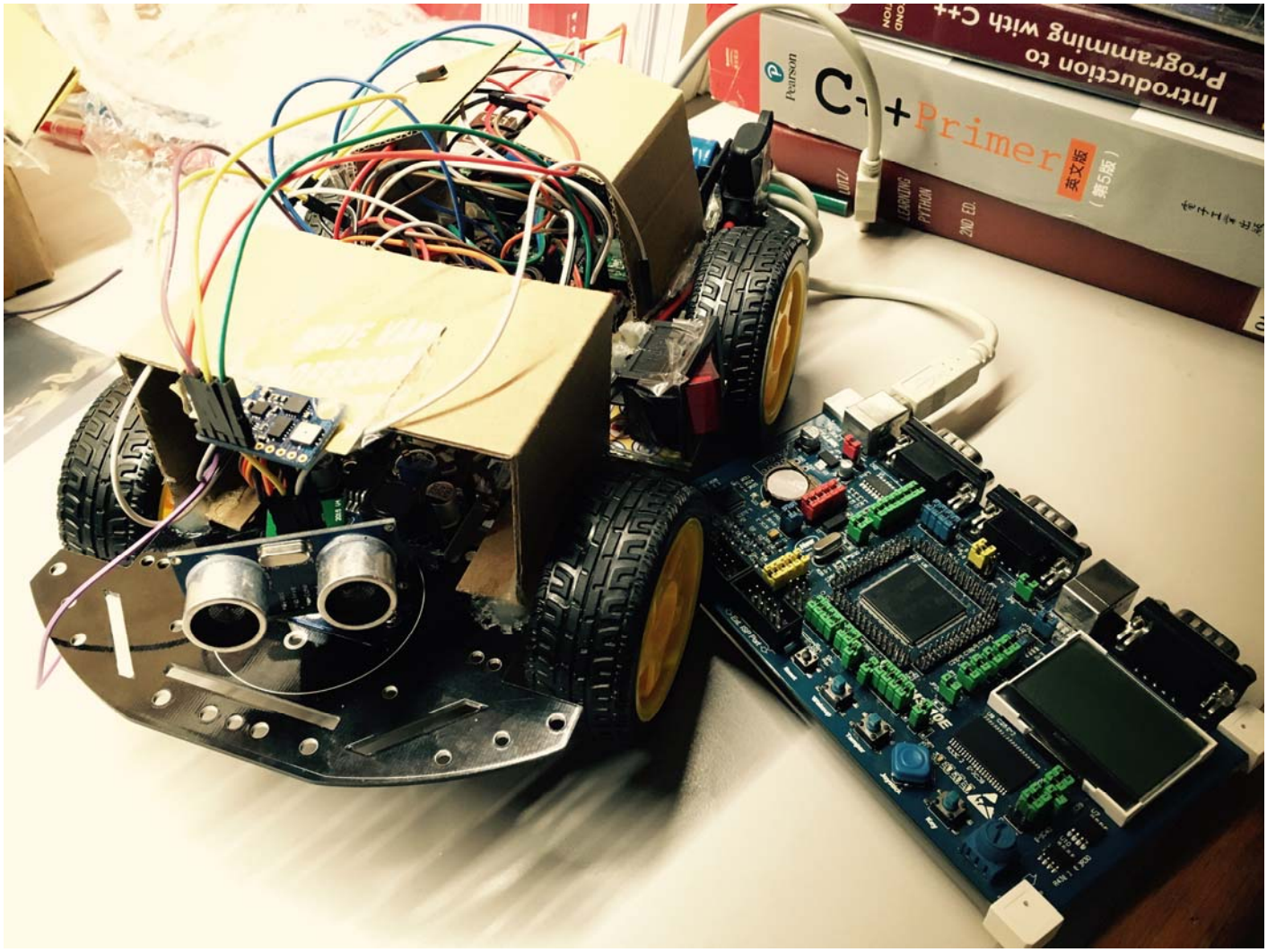
Group Number	05
Project Title	Navigating smart car
Name of Student 1	Guo Jixin
Name of Student 2	Ren Yi

Please attach ONE photo of your project here



Please list the functions of your project in point form

- Detect obstacles using ultrasound sensor
- Avoid obstacles and change path automatically
- Measure the velocity and distance of the car while it is moving
- Navigate through a certain direction

ELEC 3300 Project Summary Sheet

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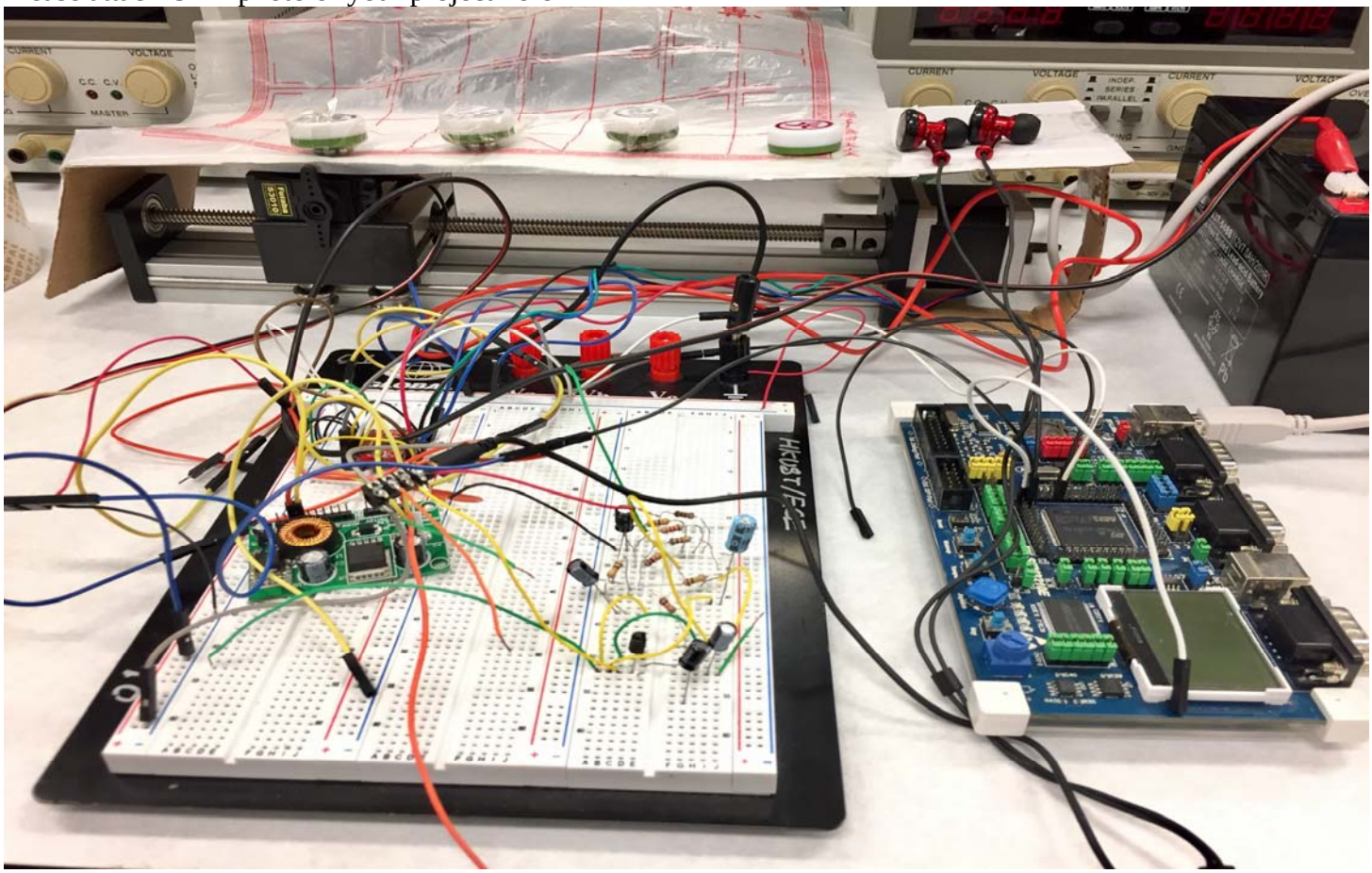
Group Number	Gp6
Project Title	Voiced controlled chess board
Name of Student 1	Tse Long Kwan, Lincoln
Name of Student 2	Lee Fung Sze, Francis

Please attach ONE photo of your project here



Please list the functions of your project in point form

- Sample analog signal from computer'3.5mm audio output to STM32 ADC channel
- Do Cross-correlation of different pairs of signals (input command and template commands) using FFT
- Recognize the voice input command based on the similarity with the library voice samples
- Move the platform controlled by step motor to the corresponding position according to input command
- Control the position of magnet attached to the servo arm controlled by servo motor

ELEC 3300 Project Summary Sheet

This is a ONE Page Summary Sheet, Content more than 1 page will be deleted.
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Group Number	7
Project Title	Four Player Snake Game
Name of Student 1	Michael Tong
Name of Student 2	Ferdinand Schaal

Please attach ONE photo of your project here

Please list the functions of your project in point form

- Four player snake game
- Players controls the snake with four different buttons representing each direction
- Displayed on a 2.4 inch LCD screen
- High score
- Pause button

ELEC 3300 Project Summary Sheet

This is a ONE Page Summary Sheet, Content more than 1 page will be deleted.
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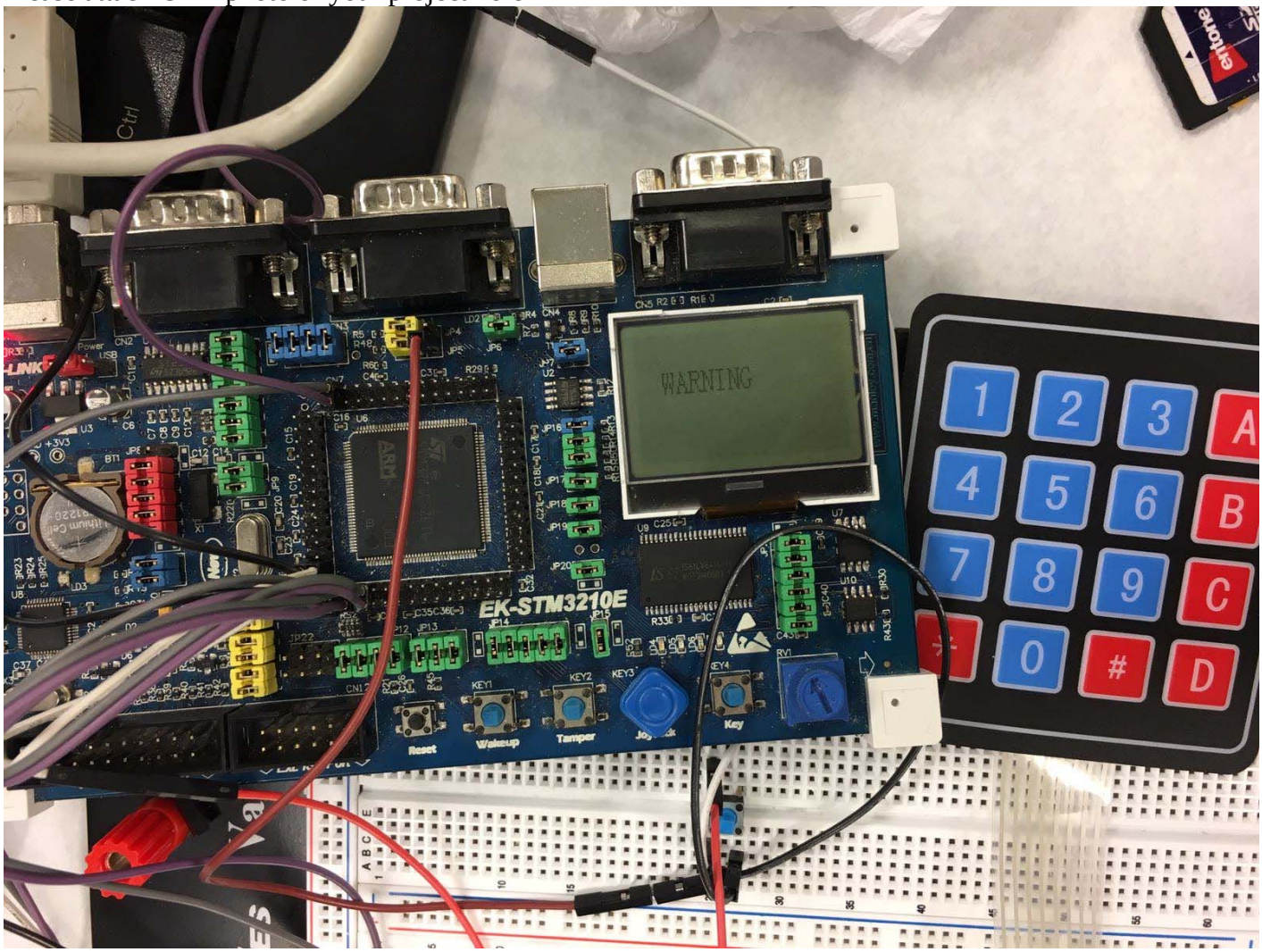
Group Number	8
Project Title	Smart Door lock
Name of Student 1	Tse Chun Fung
Name of Student 2	Ho Shu Kwan

Please attach ONE photo of your project here



Please list the functions of your project in point form

- 3 Different modes of door lock combining password and time
- Can display timer and numbers to help entering/changing password
- Can save load password for different users
- Sound alerts and display warning when numbers of failure
- Auto detect incoming people

ELEC 3300 Project Summary Sheet

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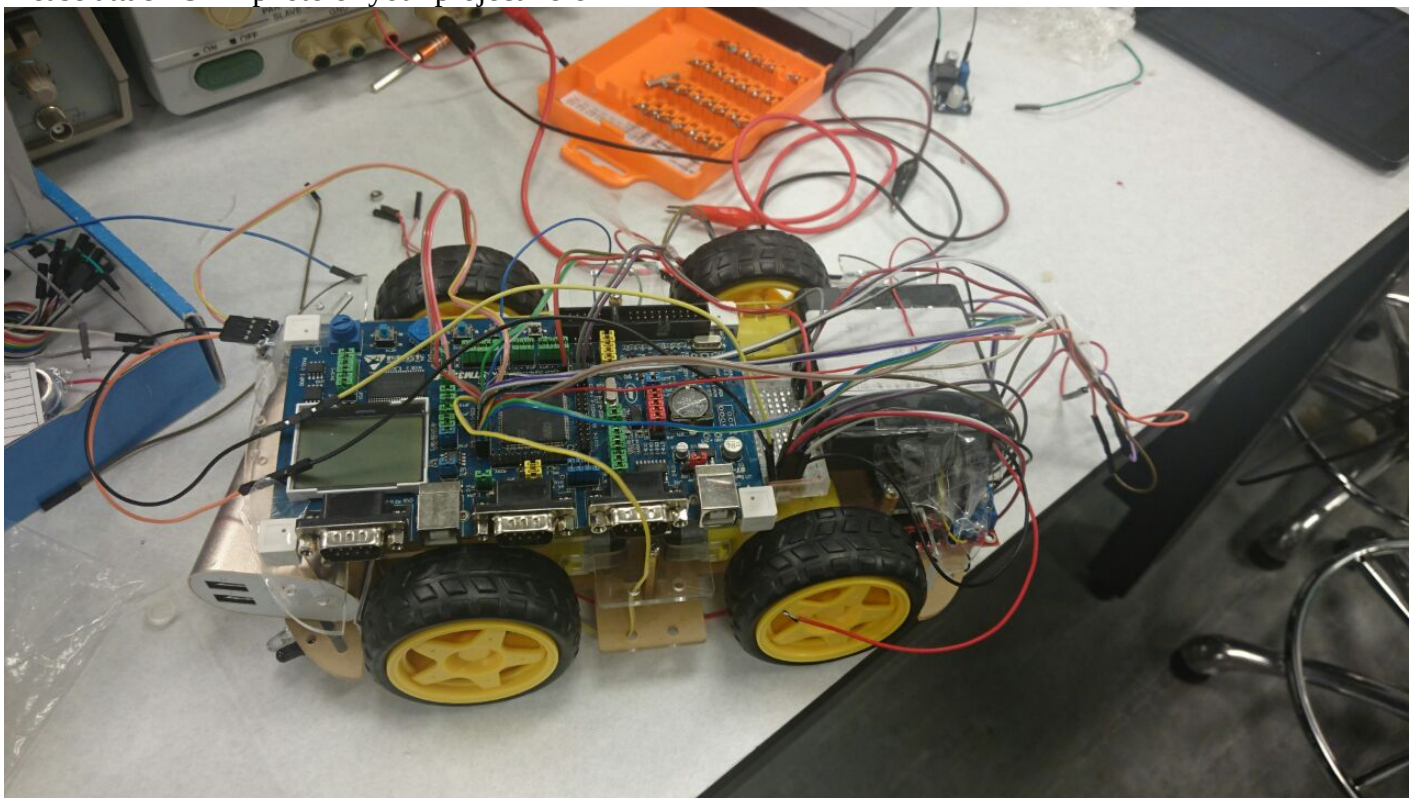
Group Number	9
Project Title	DriveSafe
Name of Student 1	Leung Kit Hang
Name of Student 2	Li Yefeng

Please attach ONE photo of your project here



Please list the functions of your project in point form

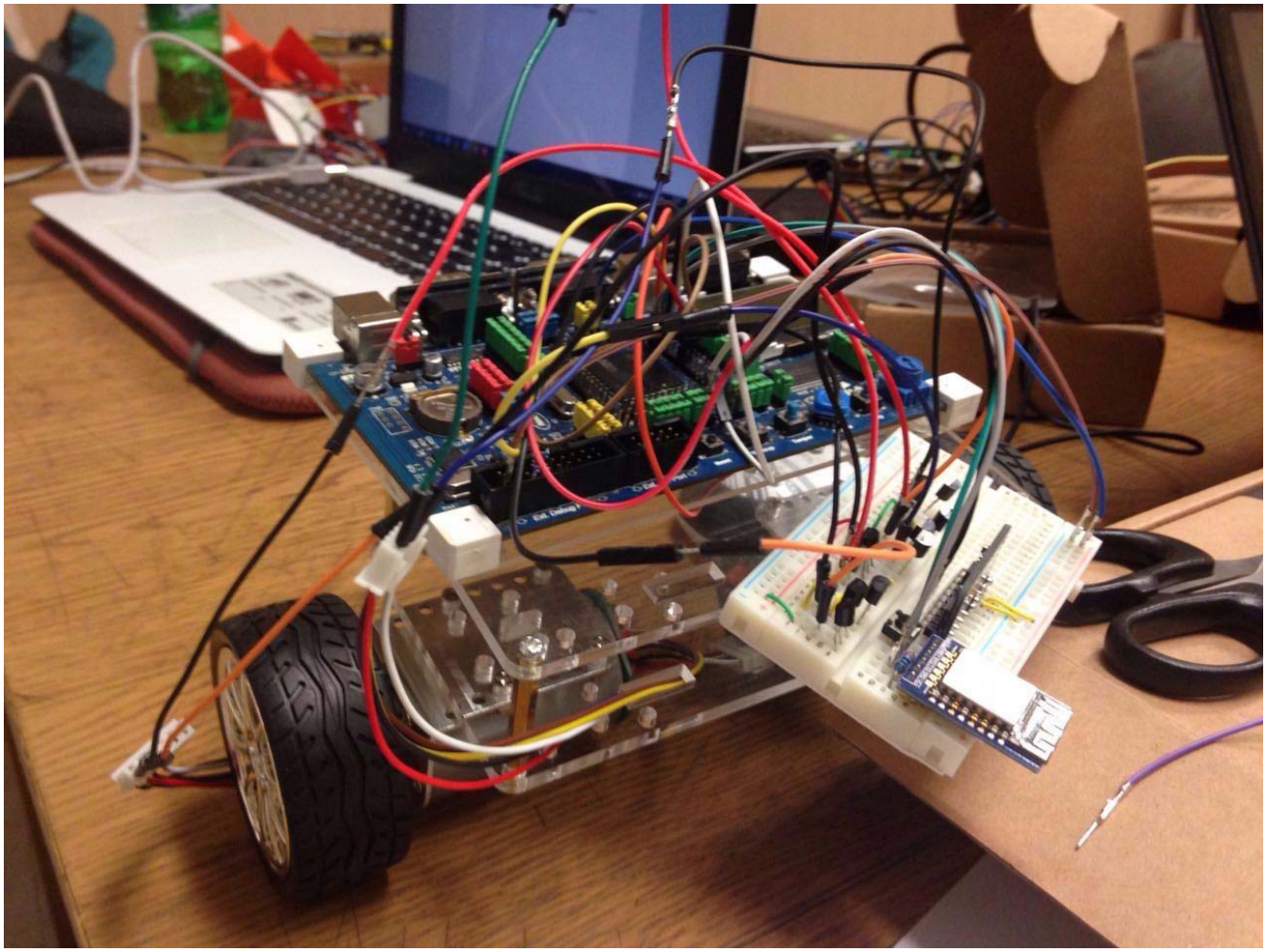
- Input moving direction and command via Bluetooth
- Detect obstacle with IR sensors
- Avoid hitting obstacle according to the feedback from IR sensors

ELEC 3300 Project Summary Sheet

This is a ONE Page Summary Sheet, Content more than 1 page will be deleted.
All the fonts used in this Sheet should be in Times New Roman at 12 points

Group Number	10
Project Title	Self-balancing Robot
Name of Student 1	CHEN Shixi
Name of Student 2	ZHAO Pengyu

Please attach ONE photo of your project here



Please list the functions of your project in point form

- Applying PID algorithm to perform self-balance
- Use systick to record the time elapsed from the system is boosted
- Using timer to capture the real-time speed of both motors
- Via I2C communication protocol, reading accelerometer and gyroscope value from GY-80 and calculate the real time posture of the car
- Using WIFI module to receive signal from PC and move forward backward and turning

ELEC 3300 Project Summary Sheet

This is a ONE Page Summary Sheet, Content more than 1 page will be deleted.
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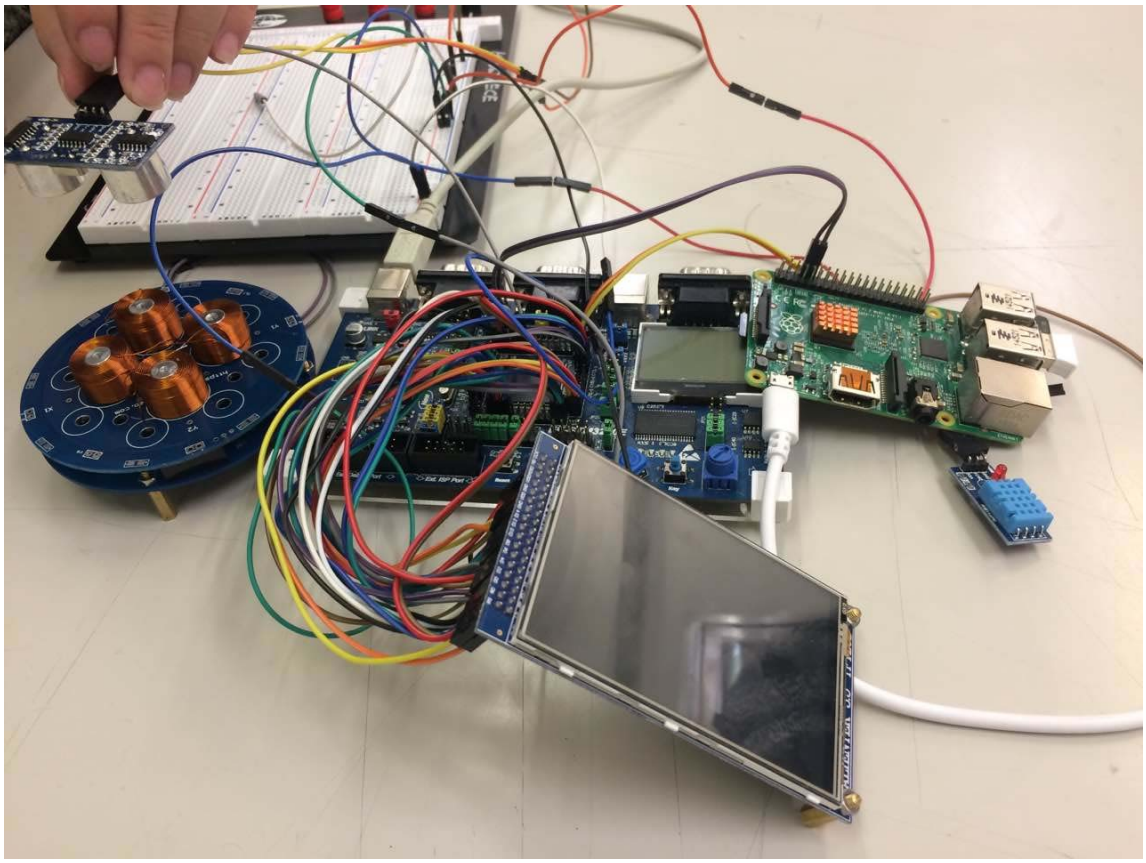
Group Number	11
Project Title	The Lighting Hub
Name of Student 1	FENG Haoan
Name of Student 2	WU Yue



Please attach ONE photo of your project here

Please list the functions of your project in point form

- LCD Display: A colour LCD is connected to STM32, which can display the information collected by micro controller and provide users with GUI to perform some operations.
- Wireless Communication: Bluetooth module and WIFI module are used in our project to enable communication between Hub and users' computers and Android cellphone.
- DHT11 sensor is used to measure temperature and humidity around.
- Magnetic Levitation Device is the additional device of the Hub.

□ ELEC 3300 Project Summary Sheet

This is a ONE Page Summary Sheet, Content more than 1 page will be deleted.
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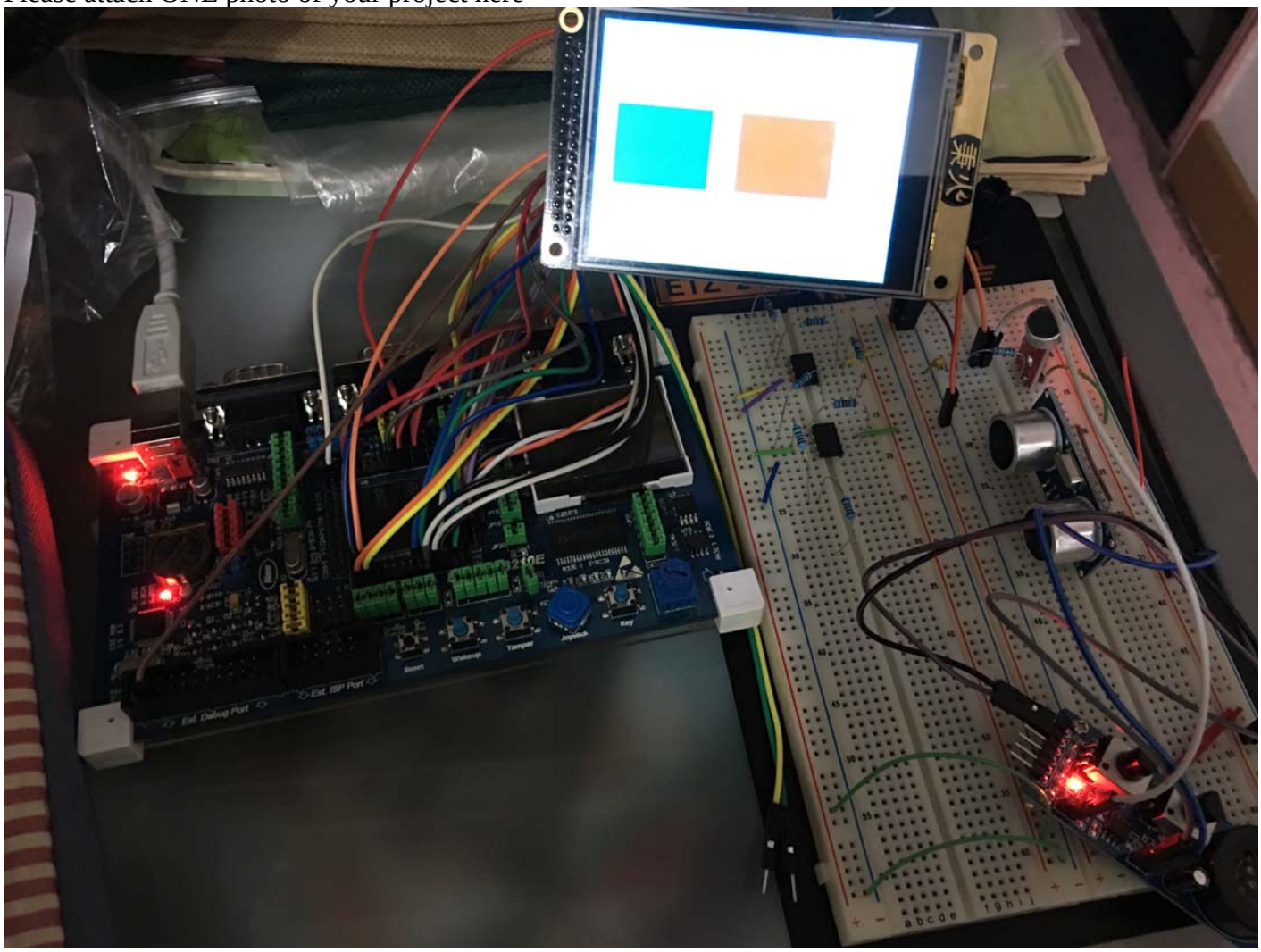
Group Number	12
Project Title	Voice Transformer
Name of Student 1	Siu Chit (20270807)
Name of Student 2	Ng Tsz Chiu (2031338)

Please attach ONE photo of your project here



Please list the functions of your project in point form

- Sampling and output control by two rectangles on touchable LCD
- Voice recorded by MAX9812 microphone and then being transformed
- Transformed voice outputted to LM386 Analog Test Board

ELEC 3300 Project Summary Sheet

This is a ONE Page Summary Sheet, Content more than 1 page will be deleted.
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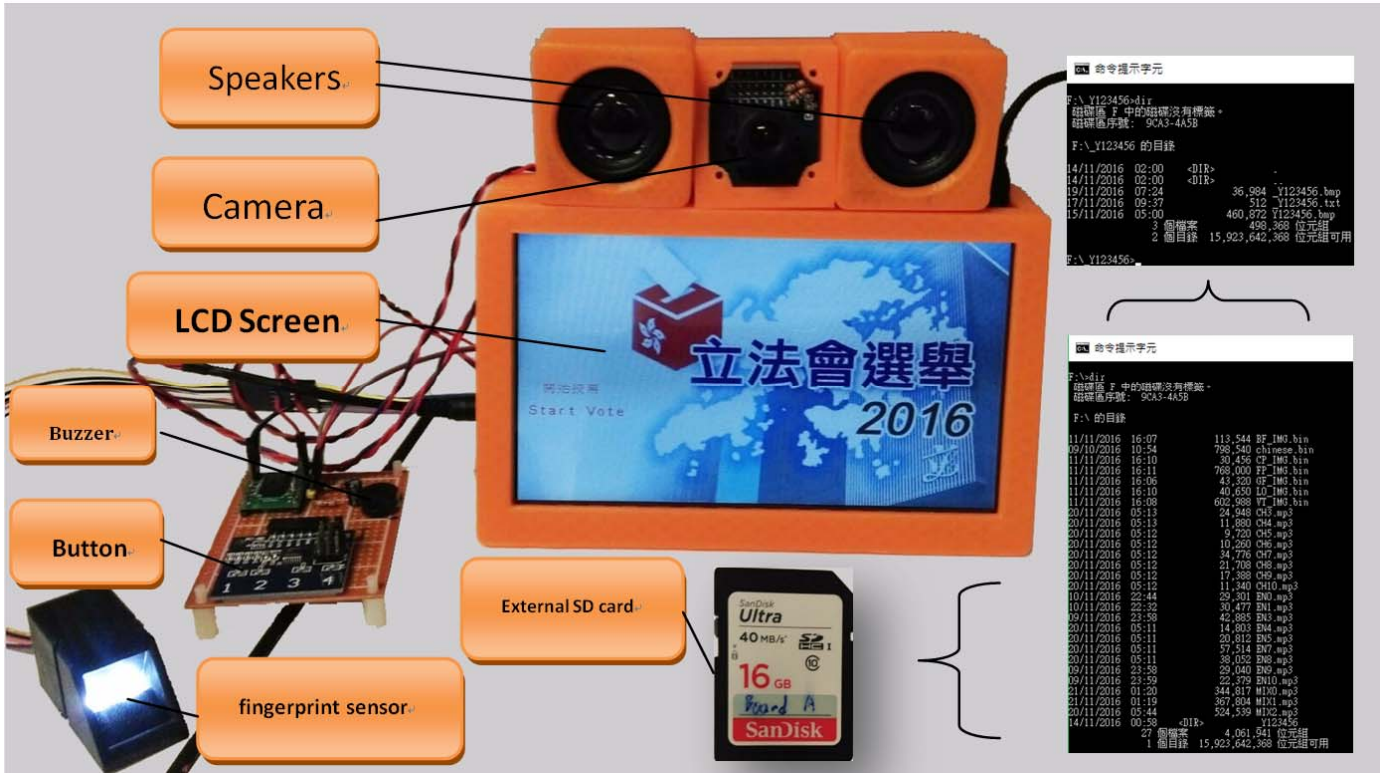
Group Number	13
Project Title	Voting System
Name of Student 1	Fong Chi Fung, Brian
Name of Student 2	Wu Ming Wa, Kenny

Please attach ONE photo of your project here



Functions

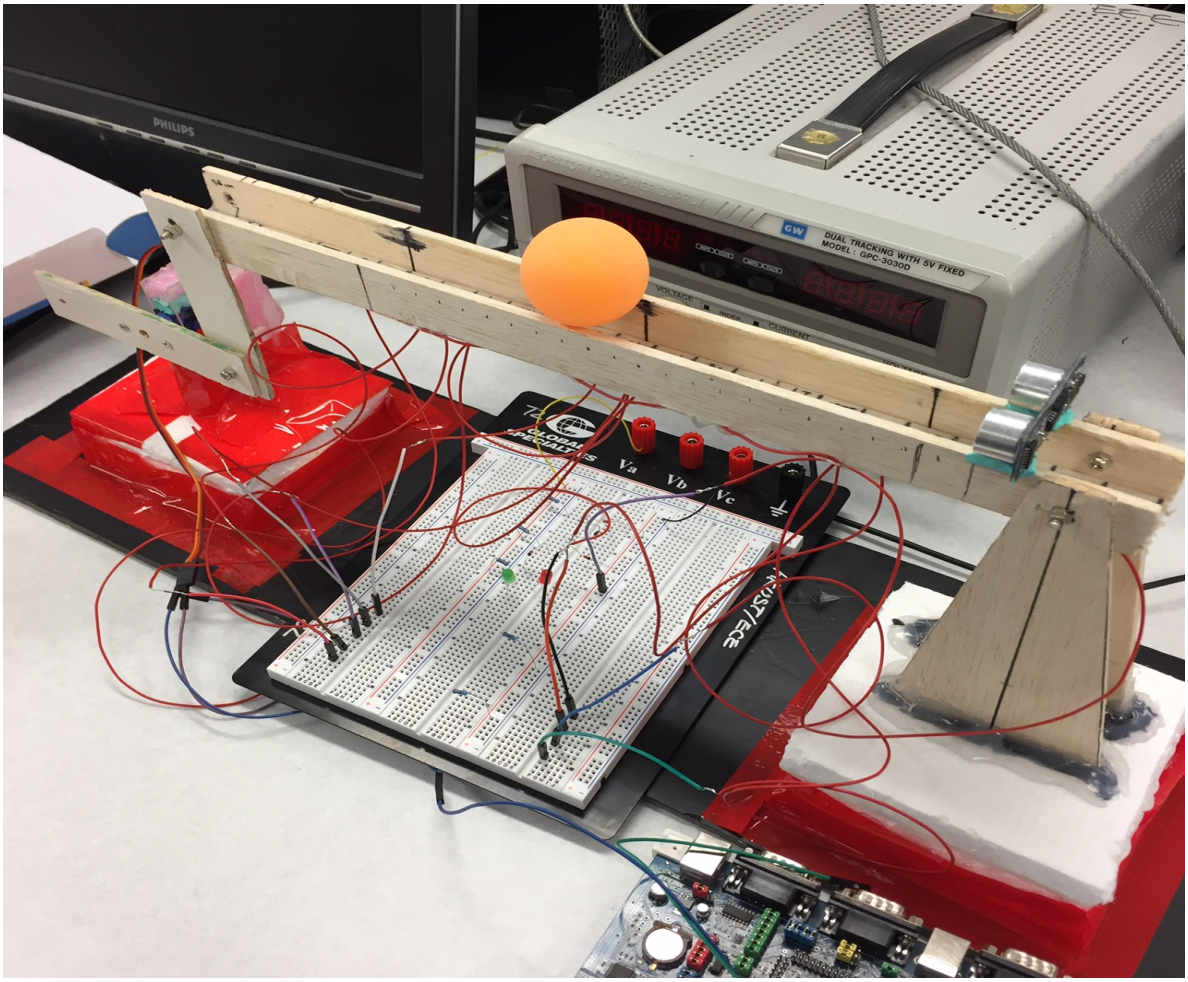
- LCD screen : Displaying layouts of the voting system
- Touch Screen :Entering the Hong Kong Identity number ,selecting the wanted candidate of the voters and processing the voting procedure
- Buttons : Providing a different entering mode to users
- Speakers : Providing voice guidance to people in need through playing the MP3 sound tracks inside the internal SD card
- Camera : Photographing voters ' s portrait and the MCU save it as BMP / JPG (Color Ratio issue)
- Fingerprint Sensor : Recording the fingerprint images of the voters and the MCU save it as BMP (Monochrome)
- Buzzer : Providing notification when fingerprint is successfully recorded once
- External SD card : Storing the Hong Kong Identity number of voters, portrait and fingerprint in the separate files ; also storing the sound tracks of the voice guidance

ELEC 3300 Project Summary Sheet

This is a ONE Page Summary Sheet, Content more than 1 page will be deleted.
All the fonts used in this Sheet should be in Times New Roman at 12 points

Group Number	14
Project Title	Ball and beam position PID control robot
Name of Student 1	WONG, Cheuk Fung Raphael
Name of Student 2	CHHANTYAL, Sita

Please attach ONE photo of your project here



Please list the functions of your project in point form

- Perform PID control to regulate ball position on the beam
- Measure ball distance with ultrasonic sensor and photo-resistors using PWM input capture & ADC respectively
- Adjust ball position by rotating the servo to a specific angle with PWM output
- Reset button to change all parameters (e.g. PID coefficients, ball distance) back to their default values

ELEC 3300 Project Summary Sheet

This is a ONE Page Summary Sheet, Content more than 1 page will be deleted.
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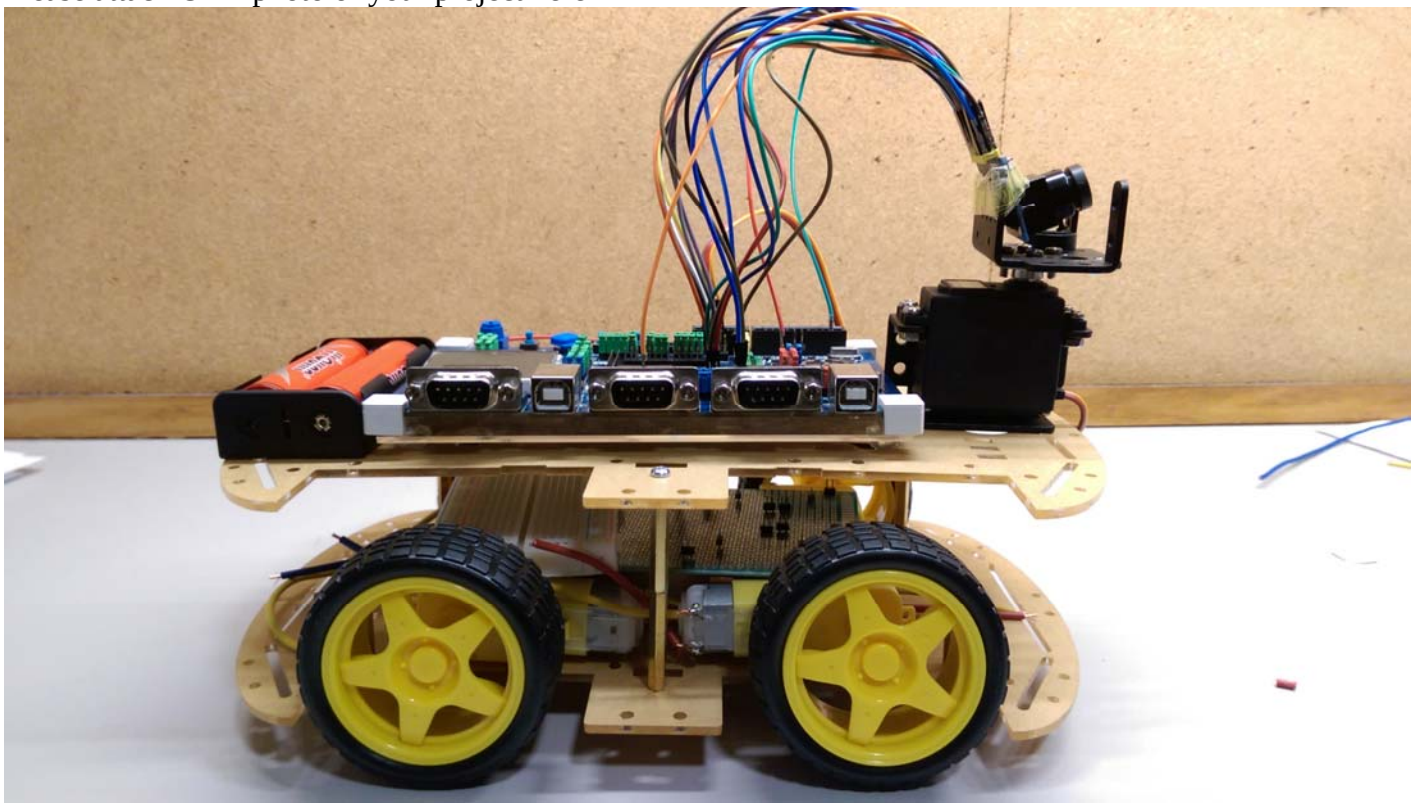
Group Number	15
Project Title	Patrolling car
Name of Student 1	GUAN Xingbo
Name of Student 2	LIANG Zhibo

Please attach ONE photo of your project here



Please list the functions of your project in point form

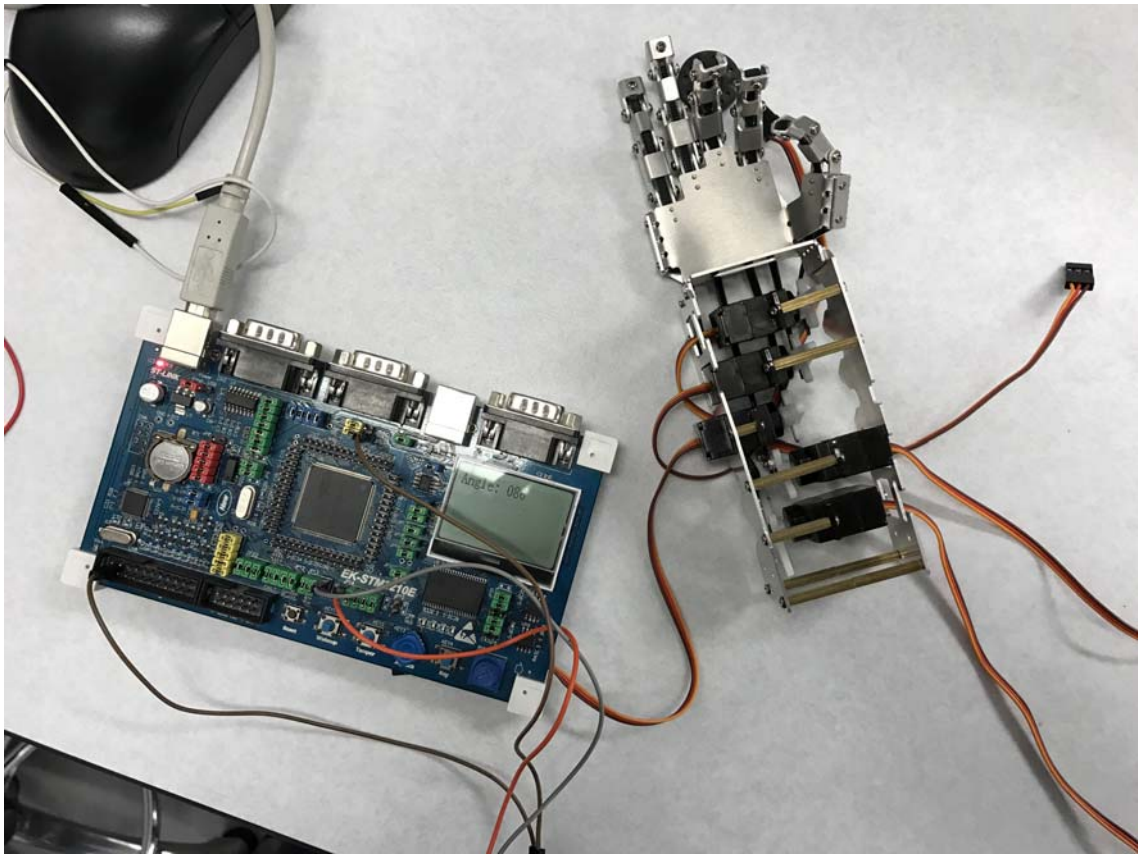
- Joystick controls the car to move forward, backward and turn.
- The car gets the direction through GY-80.
- The camera on the servo motor moves automatically according to the direction.
- The camera capture the image continuously.
- Wi-Fi module establishes a TCP/UDP connection between computer and STM32
- The images captured will be sent back to computer through Wi-Fi

ELEC 3300 Project Summary Sheet

This is a ONE Page Summary Sheet, Content more than 1 page will be deleted.
All the fonts used in this Sheet should be in Times New Roman at 12 points

Group Number	16
Project Title	Mind control robotic hand
Name of Student 1	Bhatti, Hamza Irfan
Name of Student 2	Cheung Hoi Ying

Please attach ONE photo of your project here



Please list the functions of your project in point form

- The robotic hand will receive EMG signal from human arm by EMG sensors
- Robotic hand can follow some specific action of human, for example grab objects, flip the palm, hold a fist and moving the arm
- 5 accelerometers will be fixed on each human finger to measure proper acceleration of finger movements
- Five motors are used to control the robotic hand's finger movement using the data from accelerometers
- Two more motors will be attached at the back of the arm to follow the flipping palm and moving arm function

ELEC 3300 Project Summary Sheet

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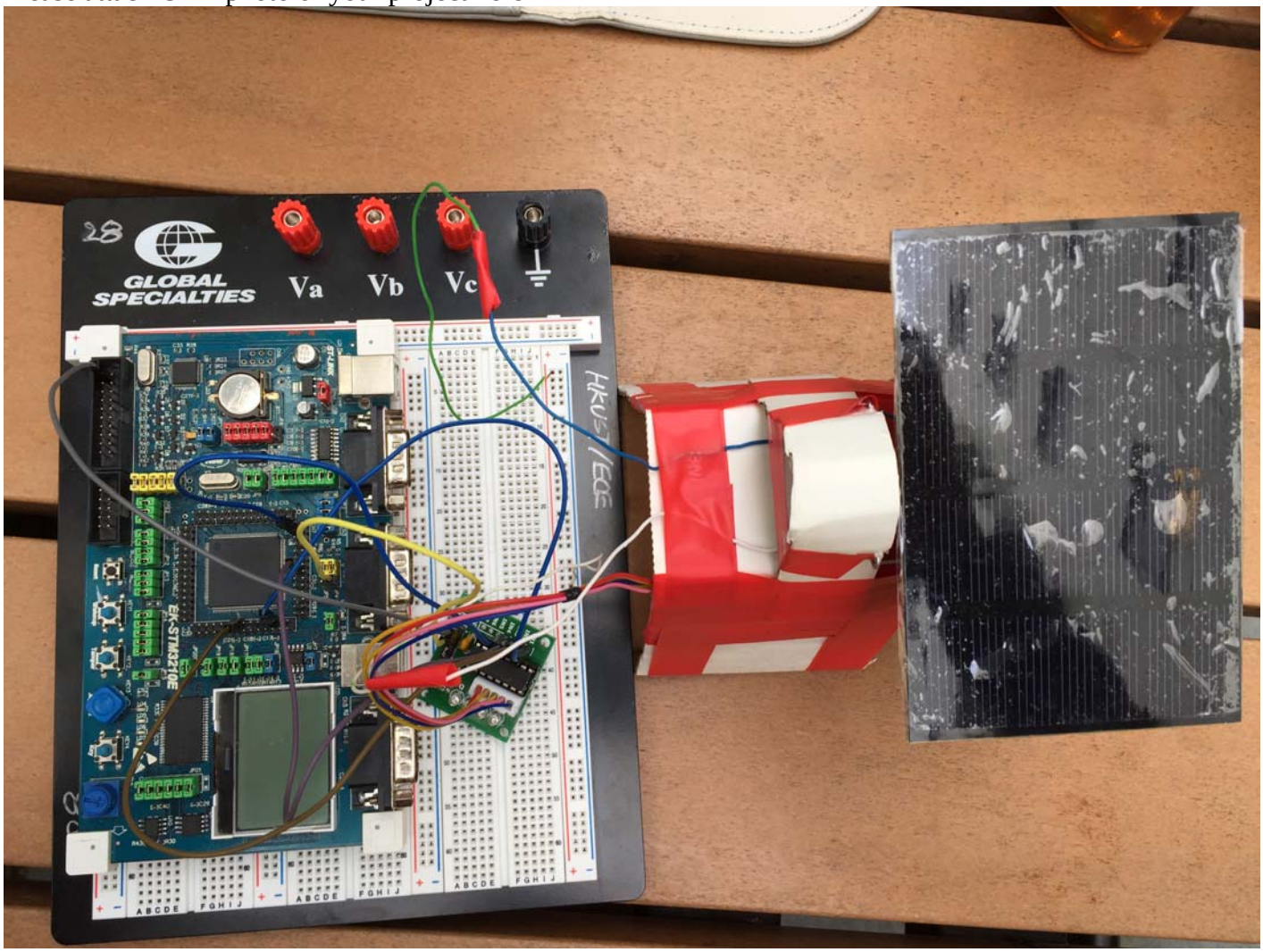
Group Number	17
Project Title	Automatically Rotating Solar Panel
Name of Student 1	KWOK MAN LOK David
Name of Student 2	YE XIAOSHAN

Please attach ONE photo of your project here



Please list the functions of your project in point form

- Take the solar panel voltage into ADC converter and store all position voltage value when it rotates
- The solar panel will be auto rotated to the best viewing position by sensing the sunlight intensity
- Record the solar panel voltage and display it to LCD Screen in STM32

ELEC 3300 Project Summary Sheet

This is a ONE Page Summary Sheet, Content more than 1 page will be deleted.
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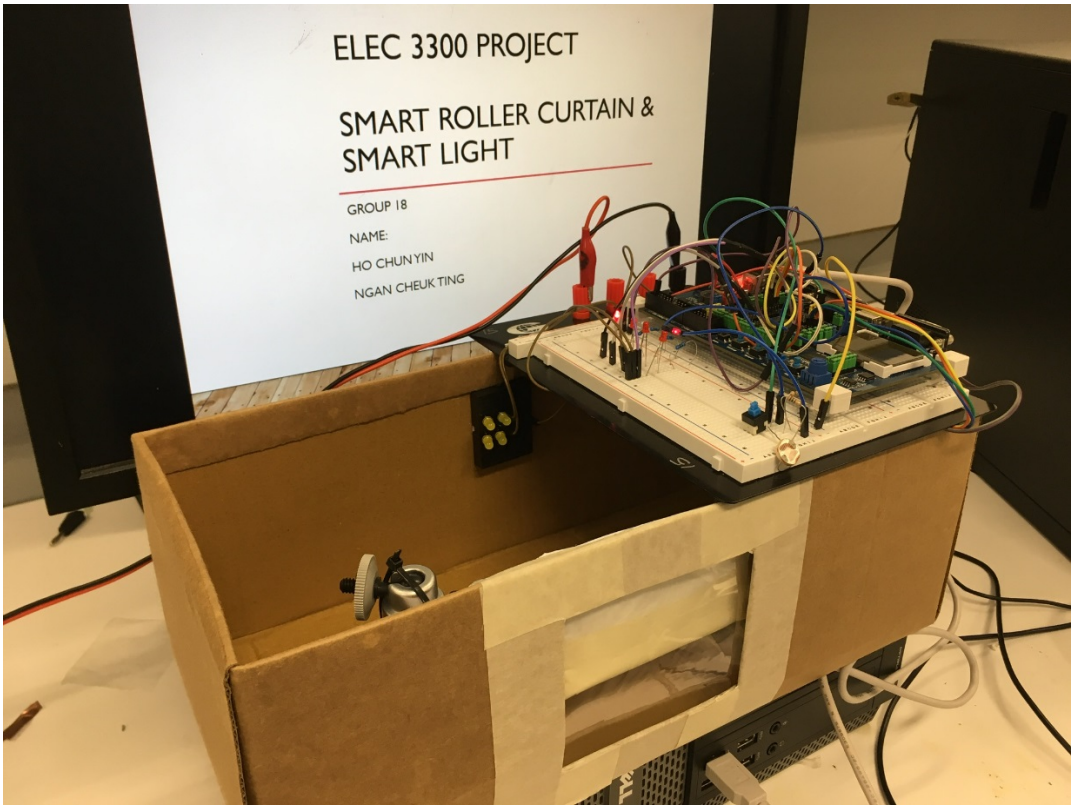
Group Number	18
Project Title	Smart Roller Curtain & Light – as Part of Smart Home System
Name of Student 1	HO, Chun Yin
Name of Student 2	NGAN, Cheuk Ting

Please attach ONE photo of your project here



Please list the functions of your project in point form

- Automation of home appliances
  - Appliances are ready before the user's command
  - When the sun is shining into the room
    - Smart roller curtain will close
  - When the sun is not shining into the room
    - Smart roller curtain will open
  - When the smart roller curtain is completely closed
    - Smart light will be turned on
- Manual control of home appliance
  - ON/OFF button of curtain

ELEC 3300 Project Summary Sheet

This is a ONE Page Summary Sheet, Content more than 1 page will be deleted.
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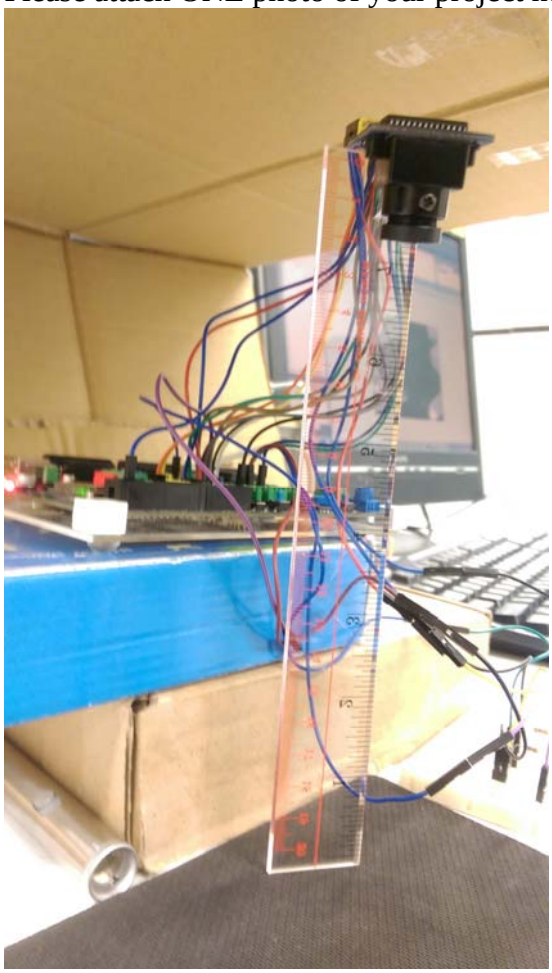
Group Number	19
Project Title	Virtual Numpad
Name of Student 1	CHENG, Wang On
Name of Student 2	LO, Yau Yu

Please attach ONE photo of your project here



Please list the functions of your project in point form

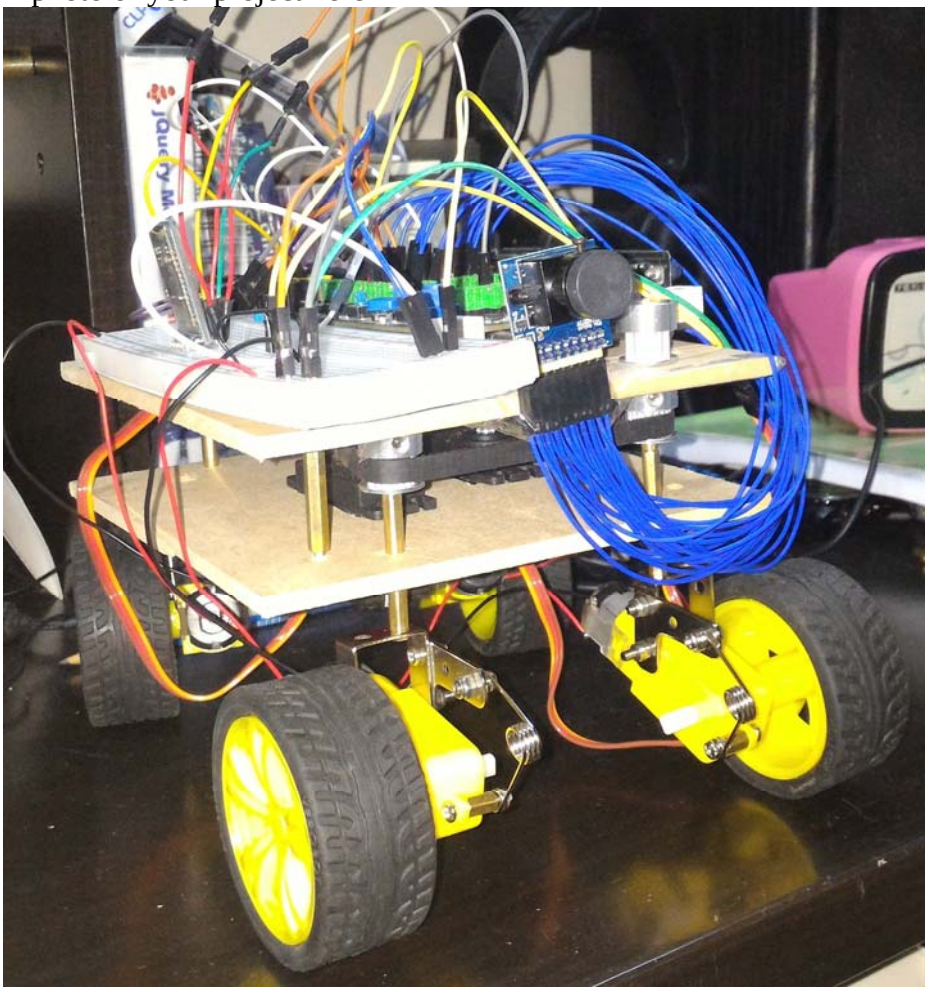
- a virtual numpad.
- use finger to type on the virtual numpad and show the result on the LCD.
- use OV7670 camera module to capture red laser beam which blocked and reflected by the finger.
  - use stm32 to calculate the pattern of the reflected laser to recognize which number button has been pressed.
  - use SCCB(I2C) to control the OV7670 camera module to output image data in QCIF resolution.

ELEC 3300 Project Summary Sheet

This is a ONE Page Summary Sheet, Content more than 1 page will be deleted.
All the fonts used in this Sheet should be in Times New Roman at 12 points

Group Number	20
Project Title	RC car
Name of Student 1	Chan Chun Fung
Name of Student 2	Li Wai Lok

Please attach ONE photo of your project here



Please list the functions of your project in point form

- Two Movement (Normal, Omni-direction)
- Controlled with Bluetooth
- Use camera to take photo

ELEC 3300 Project Summary Sheet

This is a ONE Page Summary Sheet, Content more than 1 page will be deleted.
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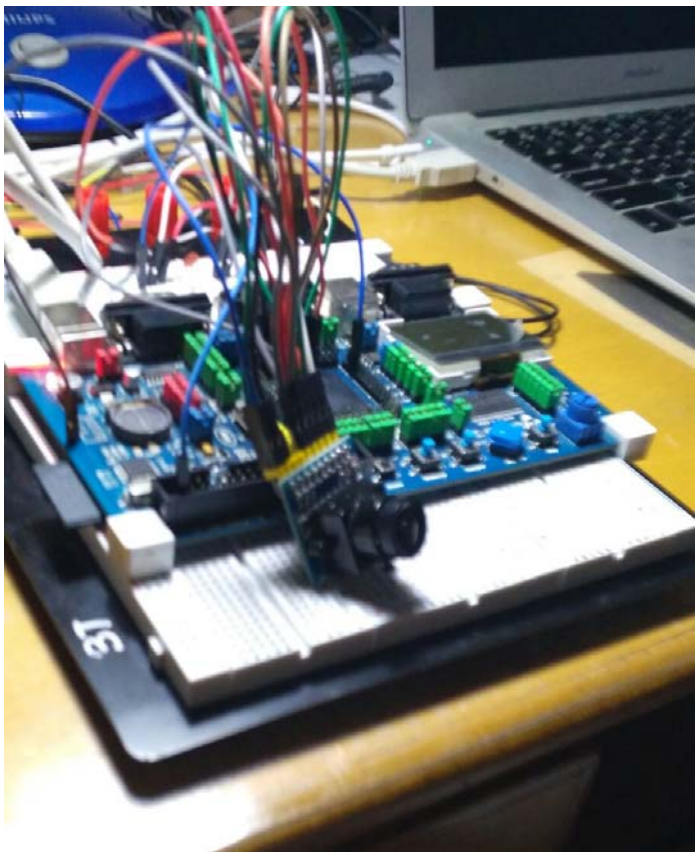
Group Number	21
Project Title	Surveillance camera
Name of Student 1	LAI, Wai Sum
Name of Student 2	CHEUNG, Wai Ping

Please attach ONE photo of your project here



Please list the functions of your project in point form

- use a camera to transmit a signal to the LCD monitor
- Provide monitoring for home safety and security

ELEC 3300 Project Summary Sheet

This is a ONE Page Summary Sheet, Content more than 1 page will be deleted.
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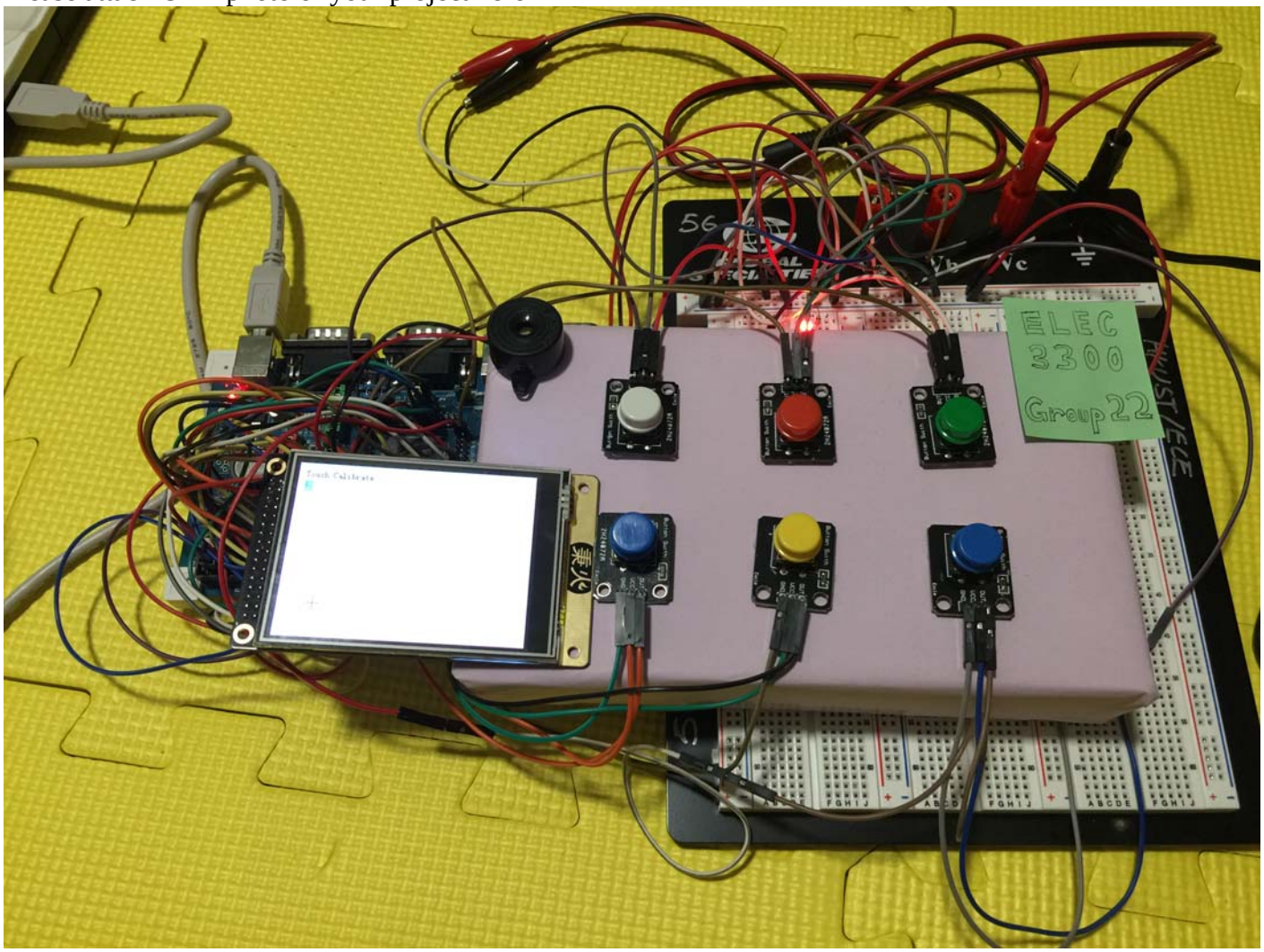
Group Number	22
Project Title	Play Therapy
Name of Student 1	Fung King Lun
Name of Student 2	Chan Ka Hei

Please attach ONE photo of your project here



Please list the functions of your project in point form

- The Wildfire LED display connected with the SYM32 implements a list of games for different diseases
    - Sequence Games: Developmental Coordination Disorder
    - Go-No-Go: Attention Deficit Hyperactivity Disorder
    - Matching Game: Alzheimer's Disease
- A 3-by-2 buttons and the LED display are used to get the inputs from users
- A buzzer is used to remind users when the time is up
- Different levels are provided depended on the need of patient
- Reaction time and score will be recorded for the further therapeutic use and a reference for clinical psychologists

ELEC 3300 Project Summary Sheet

This is a ONE Page Summary Sheet, Content more than 1 page will be deleted.
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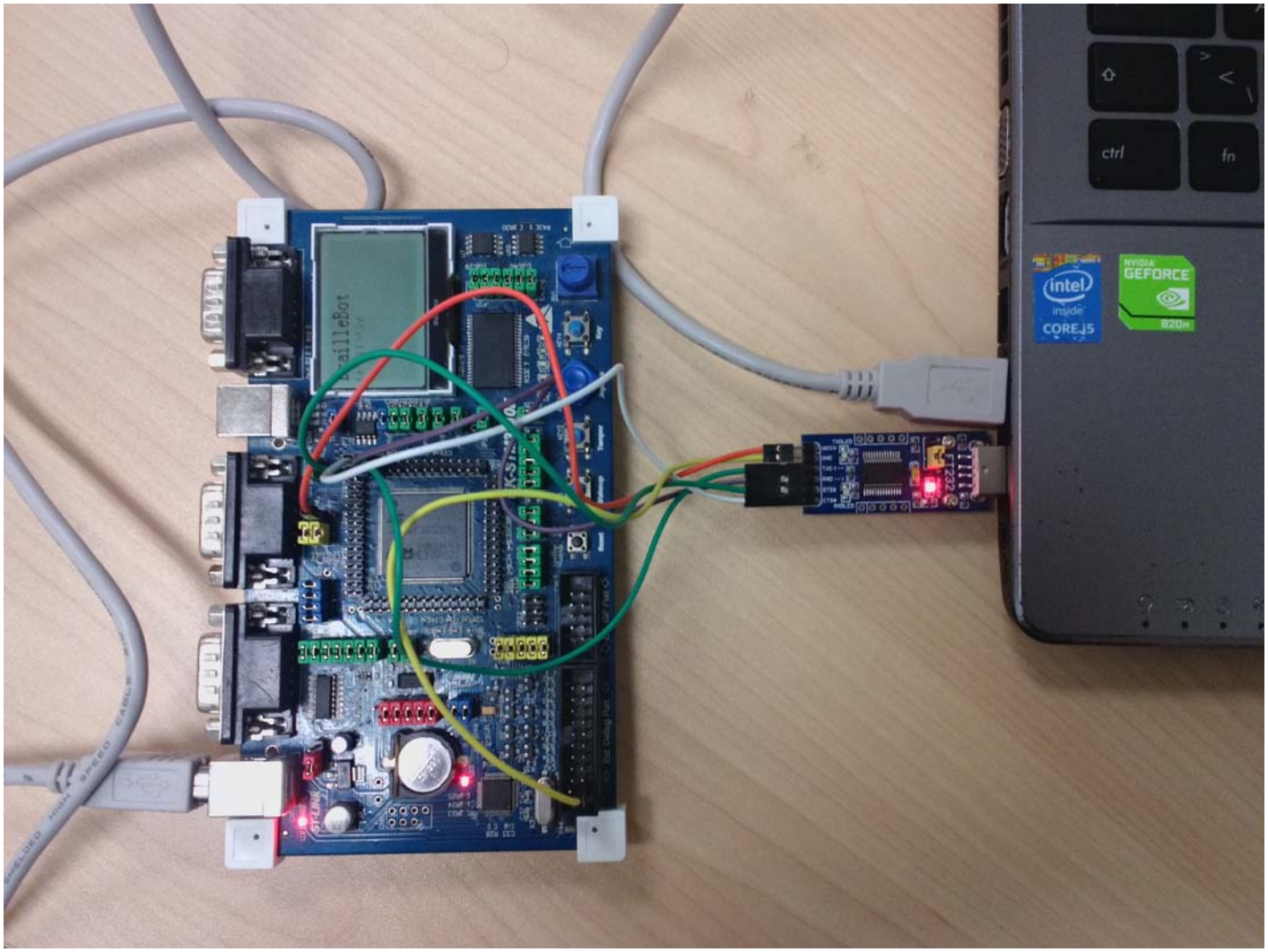
Group Number	23
Project Title	BrailleBot
Name of Student 1	Thomas Jonathan Lew
Name of Student 2	

Please attach ONE photo of your project here



Please list the functions of your project in point form

- Aims at translating text for blind people
- Converts text into Braille and displays it on Screen
- Sends text to computer using USART with FT232 board (USART to USB)
- Matlab code converts text into speech
- Audio of text is played on the computer's speakers