Nguyen Le Hoang Quan - Embedded Software Engineer

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SUMMARY

I'm an engineer who just graduated with a major in Mechatronics at Ho Chi Minh City University of Technology and Education. With my knowledge of Microcontrollers, I enjoy solving Microcontroller problems and creating the best solution for the users. I also spend time learning new technologies and best practices for becoming a better engineer.

EDUCATION

HCMC University of Technology and Education (Viet Nam) **Aug 2019 – Present**

- Studying Mechatronics Engineering
- Degree grade: Good – GPA: 8.04/10

TECHNICAL SKILLS

Programming Languages: C, C++, Python

Frameworks: OpenCV, Flask, Unity

Foreign Languages: English **(**TOEIC 790**)**

Microcontroller:

- **AVR:** Arduino UNO, Arduino Mega
- **ARM:** STM32F103C8T6
- **SoC:** Raspberry Pi 4

Peripherals and protocols: UART, I2C, SPI, ADC, DAC, DMA

IDE: Visual Studio, E2Studio, STM32CubeMX

Soft skills:

- Problem-solving skills, teamwork skills, independent work skills and time management skills

Other:

- Git/Gitlab
- Understanding of OOP methodologies, V-model, Unit test and Integration test

WORK EXPERIENCE

Company: Renesas Design Vietnam Corporation **Aug 15, 2022 - Feb 20, 2023**

Position: Embedded Software Intern

Project: Test code for modules of Renesas RX72N Board

- **Description:** Read and review the test code of the Renesas RA board then consider changing the above test code to match the configuration of the Renesas RX board. Run this test on board, write specification for each test code and write test report.
- **Technologies:**

- Board used: Renesas RX72N
- Programing languages used: C
- Framework: Unity
- Ide used: e^2 studio
- Doxygen

- **Responsibilites:**
  - Investigate the I2C module test code of the RA6M3 board.
  - Write a document about what I learn about I2C and give a presentation to help people understand I2C of the RX72N board.
  - Build test code for I2C modules including: I2C Master, I2C Slave, SCI I2C Master, SCI I2C Slave.
  - Run the test suite on the RX72N board and report back the successful, failed and skipped test cases.
  - Write test specification related to the test code .

UNIVERSITY PROJECT

Project: Automatic water system **May 14, 2020 - May 21, 2020**

- **Description**: This is a system designed to make watering automatically based on the value of the soil moisture sensor and the ambient temperature. If the soil moisture and temperature are suitable, the pump will be opened to water
- **Technologies:**
  - Board used: Arduino UNO
  - Sensor used: LM35, YL69
  - Programing languages used: C
- **Responsibilites:**
  - Investigate the LM35 and YL69 datasheet.
  - Write a program to read temperature and humidity values from temperature sensor LM35 and humidity sensor YL69.
  - From there, give the conditions to control the pump to operate.

Project: Student attendance system **May 17, 2022 - May 23, 2022**

- **Description:** This is the system help teacher to check the quantity of students in class and know the absent student. Student are distributed the ID card and every time they come to class , they must swipe the card through module RFID. System will recognize ID card and send the name of student to Firebase and display it in LCD.
- **Technologies:**
  - Module used: ESP8266, RFID and LCD
  - Programing languages used: C
- **Responsibilites:**
  - Investigate about Firebase, ESP8266 and RFID Module
  - Write a program to connect between ESP8266 module and Firebase

- Write a program to read the RFID tags through the RFID module. Then send that information to Firebase, the information includes student ID, student name and attendance time.

Project: Flight simulator control system **June 12, 2022 - June 20, 2022**

- **Description:** Flight simulator control system is designed to control flight simulator on Google Earth Pro , Use MPU6050 to control in up, down, left, right directions to take off and land the airplane. Use 4 button include: 2 button to control speed(Speed up and Speed Down) of airplane and 2 button brake (Brake left and Brake Right).
- **Technologies:**
  - Board used: Raspberry Pi 3 Plus
  - Sensor used: MPU6050
  - Programing languages used: C and Python
- **Responsibilites:**
  - Investigate about MPU6050 datasheet.
  - Establish connection between Raspberry Pi 3+ and MPU6050 via I2C protocol.
  - Write a program to read x, y, z coordinate values of MPU6050 and send those values from raspberry pi 3 to computer via UART protocol.
  - Write a python program that reads the values sent from the raspberry pi. Through coordinate values, control the position of the mouse pointer on the screen using the pyautogui library.

Project: Research, design, manufacture disinfection robot combined with goods in the infection area with remote control **March 15, 2023 – July 20, 2023**

- **Description:** The robot has the shape of a delivery truck. The robot is controlled remotely via a handheld controller and has a camera to monitor remote operations via the web sever.The robot is designed according to a 2-wheel steering system, 1 motor does the driving job and 1 motor does the robot's forward and backward work.
- **Technologies:**
  - Board used: Arduino mega 2560, Raspberry Pi 4
  - Programing languages used: C, Python
  - Framework: OpenCV, Flask
  - PID controller
- **Responsibilites:**
  - Investigate about Flask framework to create websever on Raspberry pi 4
  - Design a web server on the raspberry pi 4 board to perform the transmission of live images from the camera to the operator to be displayed on the web.
  - Write a code to control the steering motor of the robot.