# NGUYỄN MINH TIẾN

## EMBEDDED FIRMWARE ENGINEER

- 22/11/1998
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## EDUCATION

**09/2016 - 02/2021**

**UNIVERSITY OF TRANSPORT AND COMMUNICATIONS CAMPUS IN HO CHI MINH**

**Electronics engineering and industrial informatics**
GPA: 3.15/4

## PRIZES AND AWARDS

**08/2019**

**STUDENTS IN SCIENTIFIC RESEARCH**

**2nd Place**
UNIVERSITY OF TRANSPORT AND COMMUNICATIONS CAMPUS IN HO CHI MINH

## TECHNICAL SKILLS

UART / I2C / SPI / MQTT / WebSocket /
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8051 - KeilC
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PIC16 - CCS C Compiler
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ESP8266, ESP32 - ArduinoIDE
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## PROJECTS

**05/2019 - 07/2019**

### DIGITS RECOGNIZED ON SCADA SCREEN

- As request of TTI Viet Nam VSIP2
- KNNs algorithm to train 10-digits model
- Implement computer vision with Python on Raspberry Pi 3 (Debian)
- Threading in Python to handle two cameras in parallel for real-time responding

- Teammate: 3 people
- Source: https://github.com/spiderock98/KNN-DigitRecognize

**01/2020 - 04/2020**

### LINE FOLLOWER ROBOT

- Organized at Binh Dinh Province as request of of my current university - in activities of College Admissions
- Implement on Arduino Nano
- Hardware: TCRT5000 - Module photodiode line follower, L298N - DC motor driver
- Script to calculate average ADC value then applied smith trigger window to determine line

- Teammate: 6 people - 2 organizers, 3 trainers, 3 firmware, 3 hardware
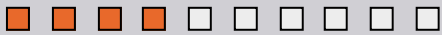- Role: trainer, firmware
- Source: https://github.com/spiderock98/XeDoLineUTC2

## Skills

**STM32F1 - KeilC + HAL + CubeMX**
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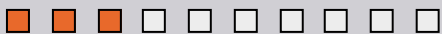
**C/C++**
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**Algorithm**
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**HTML / CSS/ JavaScript**
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**NodeJS Framework / Git / Github**
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**English**
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**Computer Vision (Python)**
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**Microsoft Office**
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**02/2020 - 05/2020**

### AUTOMATE BELL RINGGING AT CAO MOC CHURCH

- PIC16F887 interact with sensors drive motor
- Dimmer AC Phase Angle to control bell (~300kg) pull speeds
- Rotate Encoder get feedback current angle to change bell direction, protect over-rotation, prevent starting system if bell still shaking
- Arduino Pro Mini + LCD 1602 + matrix keypad as controller to configure whole system, DS3231 real-time IC to schedule bell ringing on daily time, in duration

- Teammate: 4 people - 2 firmware, 2 hardware, 2 mechanical
- Role: firmware
- Source: https://spiderock98.github.io/RingTheBell/

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**03/2020 - 12/2020**

### PLATFORM IOTS IN AGRICULTURE

- NodeJS in the back-end with 3 child server: webserver, camera WebSocket server, data-command WebSocket server
- Pair new gateways (ESP32) with user account by send network info from dashboard application to gateway via UART
- Pair new garden devices (Arduino Nano ATMega328P) with gateway by scanning QR code through camera stream of ESP32
- Get camera stream from ESP32-CAM back to camera WebSocket server for display in dashboard as surveillance camera
- Garden devices and server exchange information (sensor values, threshold config, control commands) via gateway back to data-command WebSocket server
- Firebase Realtime Database to store user and device information
- Firebase Authentication to authenticate users
- ElectronJS front-end framework to build desktop application dashboard, monitor sensor, upload configs (ssid, password, userID, usb port, upload baudrate) to setting blank new gateway. Execute python script in background process to detect USB port, get network info
- Visualize sensor data using Google Chart API
- Locate place using Google Map API
- Deploy project on Raspberry Pi 3B, router port forwarding to access server from different networks

- Teammate: 3 people - 1 software, 2 firmware, 3 hardware, 2 mechanical, 1 PCB designer
- Role: firmware, software, hardware
- Source: https://github.com/spiderock98/PairDevices

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## WORK EXPERIENCE ★

**06/2020 - 09/2020**

### ELEX LAB - ELEXLAB.VN

**Internship - Back-end Developer**
- Support 2 IoTs Smart Home projects for company
  > Source: https://github.com/spiderock98/ClientElex-DATN
  > Source: https://github.com/spiderock98/ToHaCoffee