

# Group Report

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# Table of Contents



ACCOMPLISHED PROJECTS



PROJECT\_SOLUTION OFFER



# Projects by Quan

Course Project, Research on Hybrid Vehicle Model via MATLAB/Simulink

- Subject: Vehicle Automatic Control Systems
- Advisor: M.S. Nguyen Trung Hieu, HCMUTE
- Participated as: Team Member
- Product: Hybrid Vehicle Model on Simulink, Project Report and Presentation

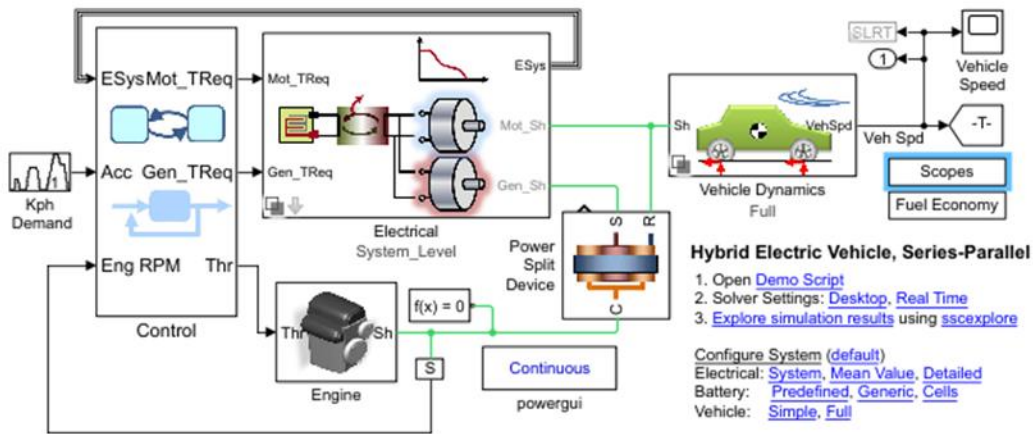


Fig. HEV Model

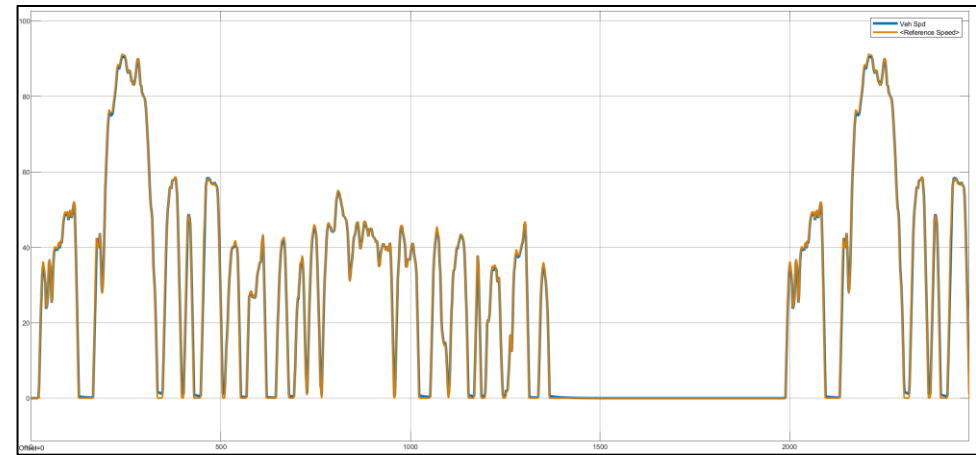


Fig. Model Drive Cycle

# Projects by Quan

Open-Source Project, Development of Analog Data Acquisition (DAQ) Device

- Subject: Embedded Firmware, Data Acquisition
- Participated as: Team Member
- Responsibility: Firmware Development
- Product: DAQ Device
- Source Code: <https://github.com/khuehm17/AD7606-DAQ>

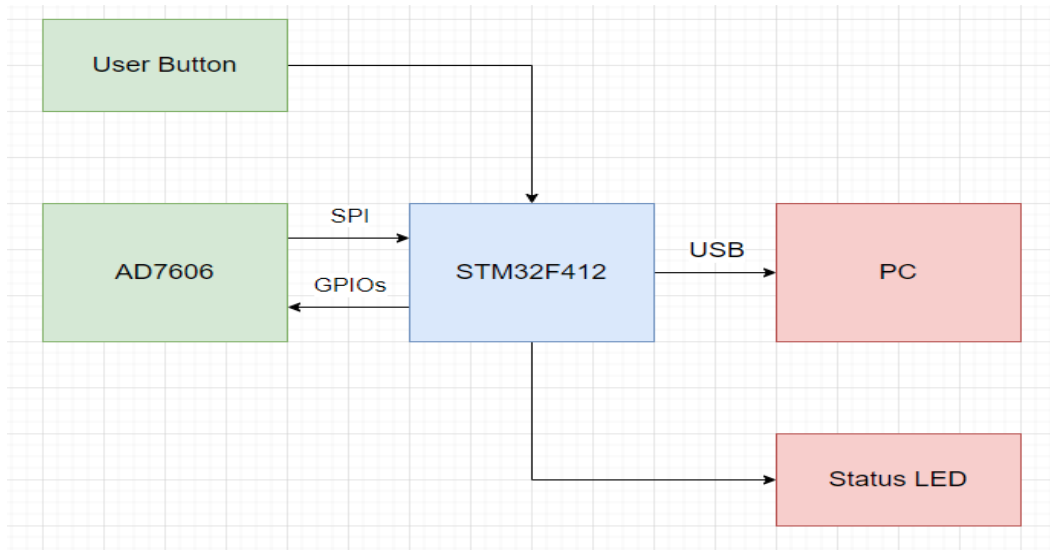


Fig. System Architecture

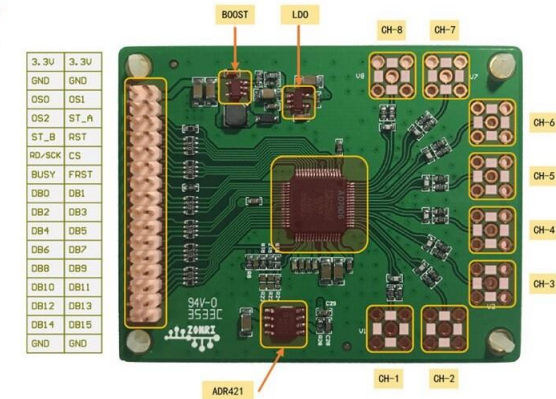


Fig. Module AD7606

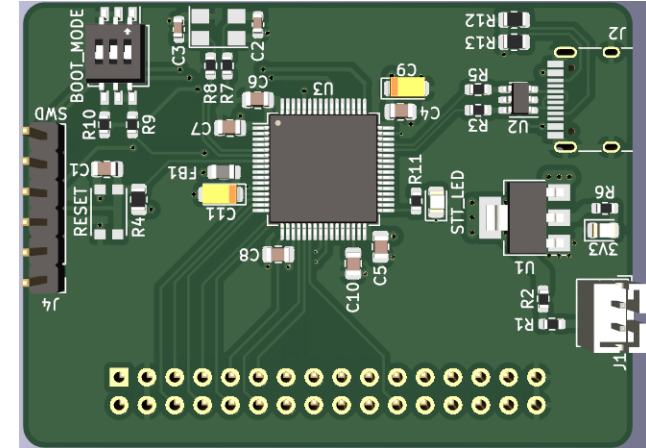


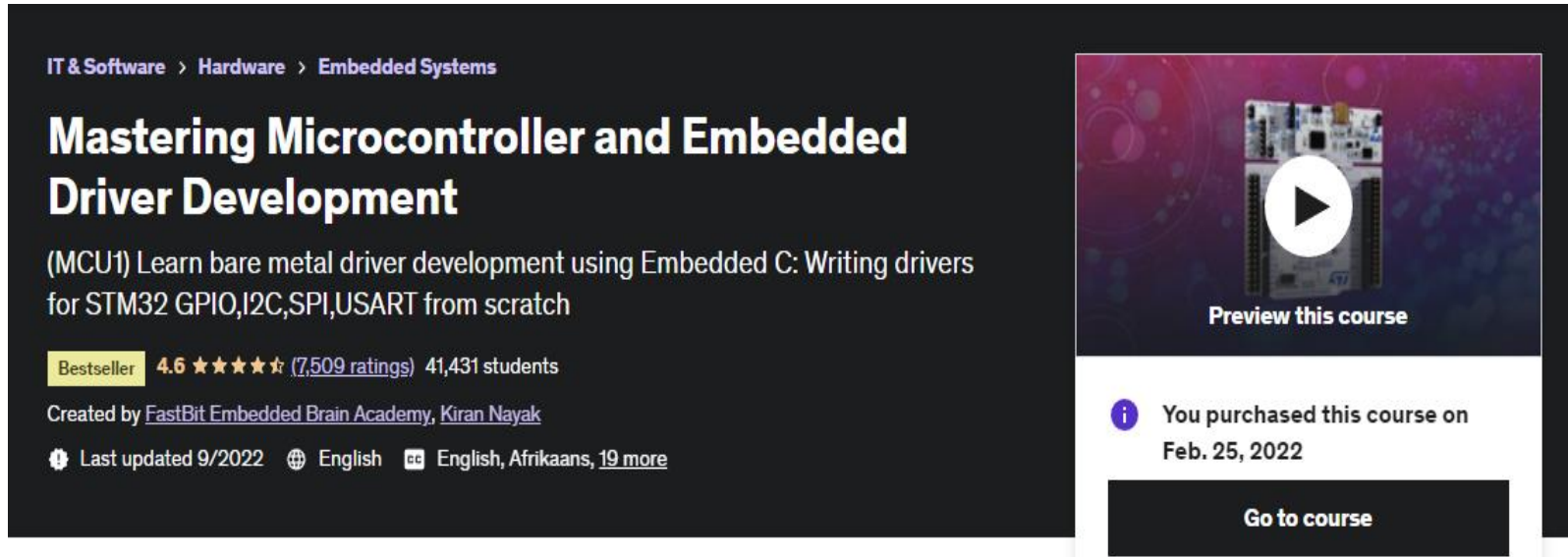
Fig. STM32F412



# Projects by Quan

Self-learning, Mastering Microcontroller and Embedded Driver Development

- Subject: Embedded System, ARM Family
- Individual Participation
- Course Exercises: Driver Development for STM32F407 Discovery Board
- Source Code: [https://github.com/hphnngcquan/stm32f4xx\\_drivers](https://github.com/hphnngcquan/stm32f4xx_drivers)
- 📄 Course Provided by Udemy, Instructor: FastBit Embedded Brain Academy



IT & Software > Hardware > Embedded Systems


## Mastering Microcontroller and Embedded Driver Development


(MCU1) Learn bare metal driver development using Embedded C: Writing drivers for STM32 GPIO,I2C,SPI,USART from scratch

**Bestseller** 4.6 ★★★★★ (7,509 ratings) 41,431 students

Created by [FastBit Embedded Brain Academy](#), Kiran Nayak

🕒 Last updated 9/2022 🌐 English 🗣️ English, Afrikaans, [19 more](#)

 Preview this course

 You purchased this course on Feb. 25, 2022

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Fig. Course Information

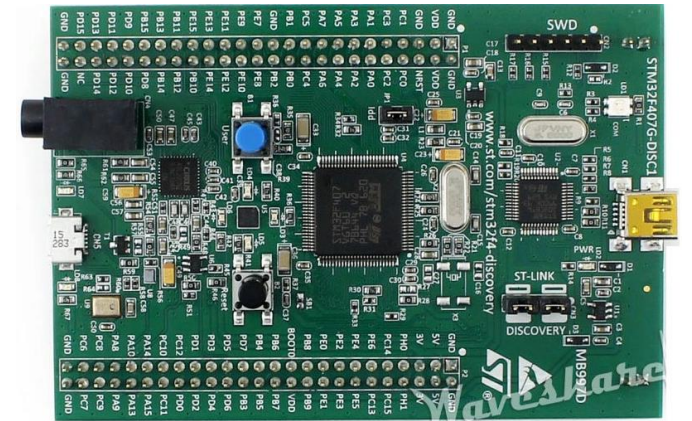


Fig. STM32F4 Discovery Board

# Projects by Nguyen

## Course Project, Study On Vehicle Electronic Stability Control System

- Subject: Vehicle Automatic Control Systems
- Advisor: M.S. Nguyen Trung Hieu, HCMUTE
- Participated as: Team Leader
- Product: Car model in Carsim, modelling & data in Simulink , Project Report and Presentation

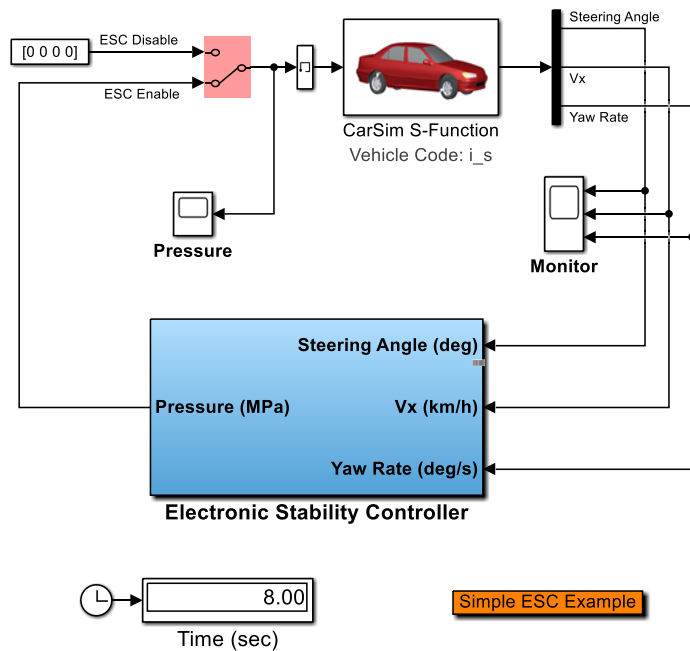


Fig. Modelling configuration in Simulink

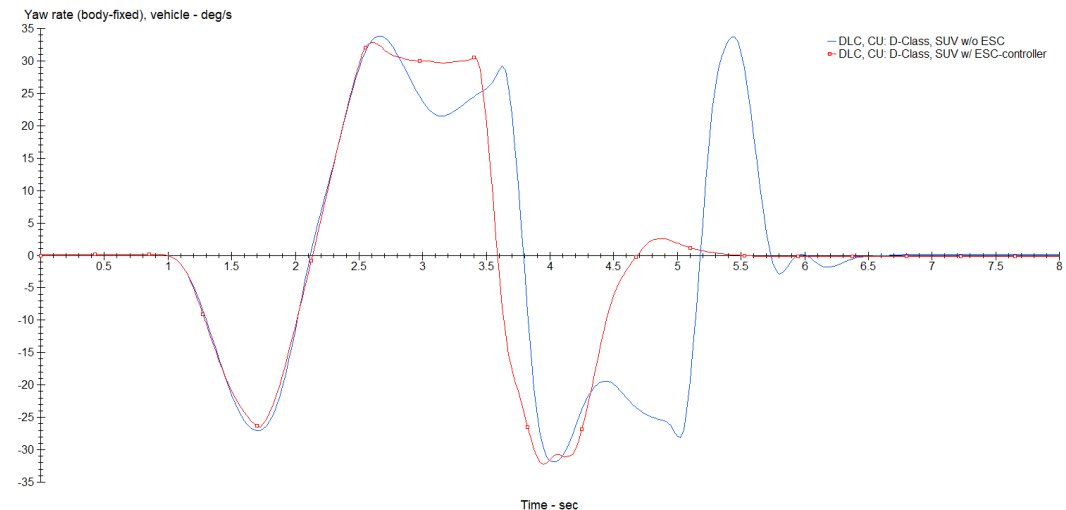


Fig. Plotted Data in Carsim

# Projects by Nguyen

Self-learning, Microcontroller Embedded C Programming: Absolute Beginners

- Subject: Embedded System, ARM Family
- Individual Participation
- Course Exercises: Introduction and Practice of Programming for STM32F407 Discovery Board
- Source Code: <https://github.com/niekiran/Embedded-C.git>
- 📄 Course Provided by Udemy.

IT & Software > Hardware > Embedded C

## Microcontroller Embedded C Programming: Absolute Beginners

Foundation course on Embedded C programming using STM32 Microcontroller.

**Bestseller** 4.5 ★★★★★ (6,578 ratings) 27,301 students

Created by [FastBit Embedded Brain Academy](#), [Kiran Nayak](#)

🕒 Last updated 9/2022 🌐 English 🗣️ English, Afrikaans, 19 more

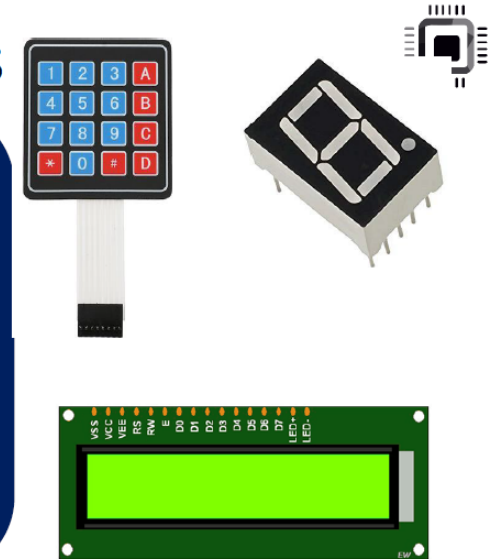
Fig. Course's information

www.fastbitlab.com

## Interfacing projects

**Code from scratch using the concepts of ,**

- Pointers
- Memory mapped IOs
- Bitwise operators
- Structures and bit fields
- const and volatile type qualifiers



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Fig. Typical project

# Project – Solution Offer

## Automotive Lane Detection, Computer Vision Approach

### ➤ Overview

Automotive ADAS have become a vital part of vehicles

One of the most important feature: Lane Detection

Most of road accidents are from carelessness of drivers when not following road lanes

Lane Detection includes warning during lane departure, and is a needed feature for developing Autonomous Vehicles

### ➤ Present Situation

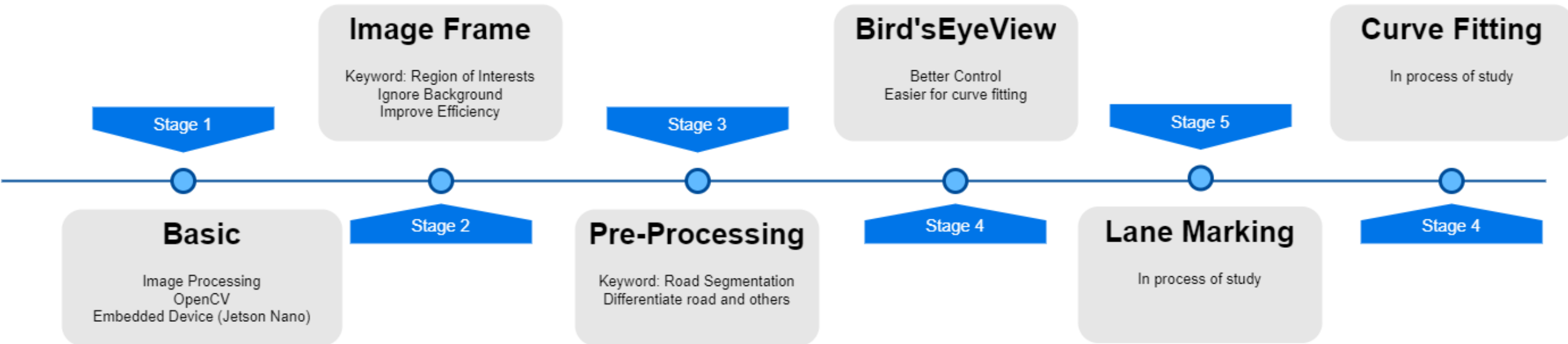
All Autonomous Vehicles apply Lane Detection Applications

Vehicle Models with built-in ADAS also use Lane Keeping Assist and Lane Departure Warning as a feature



# Project – Solution Offer

## Development Planning



A side-profile photograph of a classic red convertible car, possibly a Morgan, parked on a paved road. The car is positioned horizontally across the frame. The background features a dramatic sunset with a sky filled with orange and yellow clouds, and a dark silhouette of trees on the horizon. The car has wire-spoke wheels and a chrome bumper. The text "THANK YOU" is superimposed in white, bold, sans-serif capital letters across the middle of the car's body.

THANK YOU