Frank Hsu

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Summary

I am now studying electrical engineering at UNSW and about to graduate in Dec. 2022. My division is control system and my interest is in circuit design and embedded systems. I have developed a battery management circuit (BMS) for a Formula Student race car and have experience in STM32 development of building small experiments.

Education

02.2021 – Present **The University of New South Wales** Sydney, Australia
Master of electrical engineering

09.2014 – 06.2018 **National Tsing Hua University** Hsinchu, Taiwan
Bachelor of Science in Power Mechanical Engineering

Work Experience

06.2019 – 10.2020 **Academia Sinica (Institute of Physics)** Taipei, Taiwan
Research Assistant

- Design X-ray tomography light path system including CAD design and manufacturing.
- Build communication UI on PC to send and receive the signal of a robot controller (With RS-232)
- Design robot path planning for replacing experiment samples.

05.2022 – 06.2022 **Academia Sinica (Institute of Information Science)** Taipei, Taiwan
Research Assistant

- Build up a motion detection prototype by ESP32 and RFID module.

Project Experience

09.2017 – 01.2018 **Self-Driving Vehicle** National Tsing Hua University

- Integrate motor control, computer vision, and Bluetooth communication, based on ROS.
- Implement a digital PI control algorithm to control motor speed.
- Build coordinate system based on Apriltag

01.2017 – 06.2018 **NTHU Racing Team** National Tsing Hua University
A team for building a race car and participating in Formula Student competition in Japan.

- Led steering system group to design and manufacture steering system hardware.
- Design battery management circuit (BMS) for low voltage systems. Monitor charging and discharging behavior of a battery pack (Using 21700 in series).
- Produce schematic and PCB layout file by Altium designer.

06.2021 - 08.2021 **OV7670 camera with STM32**

- I2C communication between the camera and the microcontroller.
- DCMI programming.
- Direct Memory Access (DMA) programming.

Skills

Programming: C, Python

Software & OS: Altium designer, Solidworks, Matlab, Git, Linux ubuntu, ROS

Hardware: STM32