Thiruvarulselvan Karunanithi

Electronics and Communication Engineering Undergraduate

An inquisitive engineering student with worthwhile experience in research and development of electronic control systems and computer programming. I am seeking an opportunity to leverage my expertise and experience into an avionics engineering role

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Skills

- Problem Solving
- Eye for detail
- Project Management
- Analytical skills
- Organizational Skills
- Interpersonal Skills

Expertise/Interests

- Embedded Systems-ARM*
- Keil, STMCube IDE, CC Studio
- FreeRTOS, CMSIS
- C/C++ and Python
- Verilog HDL - Xilinx
- MATLAB/Simulink
- Engineering design

Courses completed

- Embedded RTOS by NIELIT
- Organizational Behaviour
- Programming In Modern C++
- MATLAB & Simulink Onramp

My Hobbies

- Science Communication
- Hiking/Trekking
- Filmmaking

Languages

- English - Professional
- Hindi - Limited
- Tamil - Native/Bilingual
- Russian - Elementary

Academic Credentials

2020-2024
CGPA-8.69 upto Sem 5

B.E (Electronics and Communication Engineering)
Bannari Amman Institute of Technology, Erode, India

2018-2020
87.5%

HSC (12th Grade)
RKR Grks Matriculation Higher Secondary School, India

2016-2018
93.4%

SSLC (10th Grade)
RKR Grks Matriculation Higher Secondary School, India

Industrial Experience

Dec-2022
May-2023
6 months

Embedded Systems Intern
Tessolve Semiconductors Ltd, Bangalore, India
Developing motor firing control, sensor data acquisition, and recovery systems avionics for sounding rockets with STM32F446RE

Dec-2022
Jan-2023
2 months

Embedded Systems Intern, Mission Control Avionics (MC-2), Aeronautical Development Establishment (ADE), DRDO, Bangalore
Developed STM32F407-based embedded firmware for data acquisition - processing - transmission, software simulation, and hardware testing/troubleshooting for the company's projects.

Oct-Nov 2022
2 months

Embedded Systems Intern
Maxmoc Motor Works Limited, Chennai, India
Development of embedded firmware for STM32F103 based on SoC and SoM, simulation and analysis, testing and backup projects

July-2022
1 month

Embedded Systems Intern
Tessolve Semiconductors Limited, Bangalore, India
Exposed to develop, integrate, and verify the embedded/IoT software and hardware solutions with MSP430 MCU

Notable Achievements

- **"Young Scientist" Award, 2020**
  Received from **Dr.Mylswamy Annadurai, Former director of Chandrayaan and Mangalyan Missions, ISRO-INDIA** for the research on climate change in the outskirts of Anamalai Tiger Reserve
- **Overall Winner ($1800 cash prize), Best Presentation and Team Coordination Award, SAE REEV Finals 2022, Bangalore - GM Motors**
- **2nd Runner up ($1250 cash prize) - Devbhoomi Cyber Hackathon - 2022, Uttarkhand State Police - IIT Roorke - Mahindra defence**

Core Projects

Jan-2022
Ongoing

Vertical Stabilization Flight Controller for Sounding Rockets

Central Research Facility, Bannari Amman Institute of Technology | Tessolve Semiconductors

Developing embedded firmware and hardware of flight control system for sounding rockets with multiple profiles - vertical stabilization, data acquisition and telemetry, and parachute recovery

Sep-2021
Jan-2023
1 Year 4 months

Range Extended Electric Vehicle

Overall Winner ($1800 cash prize), Best Presentation and Team Coordination Award, SAE REEV Finals 2022, Bangalore - GM Motors | TCS

Developed embedded systems (STM32F103) for hybrid control, precharge/discharge, failsafe and signal plausibility, power management, and data acquisition systems for a range-extended hybrid electric automobile. Documented DFMEA and Validation Plan

Aug-Sep
2022
2 months

Heavy Lifting Drone with Anti-Drone System

2nd Runner up ($1250 cash prize) - Devbhoomi Cyber Hackathon - 2022, Uttarakhand State Police | IIT Roorkee | Mahindra Defence

Developed the electronic systems (Pixhawk - STM32H) for a heavy lifting drone and dismantling of any target surveillance drones with the reactive jamming technique using Software Defined Radio (HackRF One - GNU Radio).

Jan-Jun
2022
6 months

Autonomous Surface Vehicle with Navigation, Station Keeping, and Obstacle Avoidance Capabilities

Presented at the RoboBoat 2022 Competition, Florida, USA
US Naval Research Lab | RoboNation | Marine Technological Society - India

Developed an STM32H-based embedded control system, capable of autonomous navigation, communicating between the Onboard computer and flight controller to avoid obstacles, exhibiting station-keeping behavior and emergency failsafe system.

Volunteering

- **President - IETE Students Forum - BITSathy Campus (2020 - current)**
  Overseeing and delegating the duties of the members. Representative to all external and internal agencies
- **Member - IEEE Students Chapter (2020 - current)**
  Actively engaging in IEEE events and activities, while also striving to uphold the values and ethics of the organization.
- **Science communicator - Galileo Science club, Udumalpet (2018 - current)**
  Engage and inspire club members and the general public to learn about science through effective communication and interactive activities.

Declaration

"I am a dynamic and driven individual with a passion for growth and a proven track record of success in achieving goals and exceeding expectations"

Digital Portfolio

THIRUVARULSELVAN K.

~ Ad Astra ~