

DININDU THILAKARATHNA

Department of Computer Engineering, Faculty of Engineering, University of Peradeniya, Sri Lanka
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A computer Engineering undergraduate with a passion to learn and understand the theory and motivation to work on practical projects and produce results. Experienced in design, development, and implementation of software and hardware solutions. I am a self-motivated student who is currently doing well in both academics and extra projects. I have initiated a Startup, TroniCode Engineering (PVT) Ltd, that builds hardware and software solutions for business applications of small to medium scale businesses. The work I have done was possible because of my passion and the capability of solving engineering problems with my skills and knowledge. With my leadership, management, and communication skills I can take responsibility and work with minimal supervision.

INTERESTS

Robotics and Automation	Computer Architecture	Embedded Systems
Mobile Application Development	Web Application Development	Machine Learning and AI
Algorithmic Problem Solving	3D Modeling	PCB Designing

EDUCATION

University of Peradeniya Undergraduate in BSc. Engineering(Hons) Coputer Engineering <i>2nd of 60 Computer Engineering Students in E/16 batch</i>	<i>2017 Nov - Present</i> GPA: 3.90/4.00
Bandarawela Central Collage, Bandarawela G.C.E. Advanced Level Examination District Rank - 10, Island Rank - 471 Physics (A), Combined Mathematics (A), Chemistry (B)	<i>2003 - 2016</i> Z-Score: 2.0702

WORK EXPERIENCE

Tronicode Engineering (PVT) Ltd (Hardware Team Lead, CO-Founder) <i>Mobile application, web development and embedded system development company</i>	<i>2020 - Present</i>
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Projects

- Gedarata Elavalu App (on PlayStore)
- Disinfection Chambers Electrical and control system (Diyathalawa base hospital)
- Drone control system project

MECO Engineering (PVT) Ltd (Research Assistant) <i>Smart buildings, Electronic and Software solutions Division</i>	<i>2019 - Present</i>
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SKILLS

Programming Languages	Python, Java, JavaScript, C, C++, Dart
Procedural Programming	ARM Assembly
Numerical Computing Packages	MATLAB, Octave, Numpy
Hardware Programming	Arduino, Verilog HDL
Mobile Application	Flutter, Android Studio
Web Application	Python Django, PHP Laravel
3D Modelling	Fusion360, Solid Works, AutoCad
PCB Related	Soldering, PCB design and development

PROJECTS

Project Repositories - <https://dinindu.me#projects>

Obstacle robots for swarm robotic project

2020-2021

- Obstacle bot capable of positioning themselves without colliding with each other for the existing swarm robotic platform.
- *Technologies: Python, OpenCV, numpy, MQTT, JavaScript, GRPC*
- *Techniques: Image Processing, stochastic gradient descent, Encryption*

Crypto currency ticker site

2020-2021

- Crypto currency to fetch currency conversion sites with high refresh rates And analysing trends real time
- *Technologies: Python, MQTT, JavaScript, CSS, Web Sockets, Nginx, Python Django*
- *Techniques: Real time web socket connections to clients for fast refresh rates*

Vegetable delivery system seller app (Elavalu Gowiya on playstore)

2020-2021

- Vegetable delivery system, Seller registration, Item Management and Order management
- *Technologies: Flutter, Firebase, Fire-store, Cloud Functions*
- *Techniques: Firebase and Firestore based App for Android and IOS*

Line Following robot using a camera feed and Machine Learning

2020

- A robot which can follow a line based on the camera feed. I have created a neural network from scratch and trained it with the data set gathered by driving the robot
- *Technologies: , Raspberry Pi, Image Processing, Custom build robot*
- *Techniques: Custom Neural Network, OpenCV*

Design and installation of fully automated system for Disinfection Chambers for Diyathalawa Base Hospital, Bandarawela Hospital

2020

Technologies: C++ Atmel Microcontollers, Costom PCB DesignTechniques: Embedded systems, Micro controller Programming, 220v Pump Controlling using contactors

Intelligent water tank filling system to Hotel ALOFT Grand, Ella

2020

- Intelligent tank filling system, tanks located in three height levels. Controlling water pumping and solenoid valves to direct water to tanks necessary
- *Technologies: C++ Atmel Micro controller, Custom PCB design*
- *Techniques: Embedded systems, MicroController Programming, 220v Pump Controlling using contactors*

Verilog Based CPU

2020

- Designing of a 32-bit CPU which supports simple instructions with caching.
- *Technologies: Verilog*
- *Techniques: Computer Architecture*

8-bit Computer

2020

- Design and building a 8-bit computer. This was designed in gate level and implemented as physical device
- *Technologies: Embedded system, Integrated circuits, Simulation*
- *Techniques: Computer Architecture*

Escape route generation system during floods 2019

- Generates escape routes during floods by estimating water levels in rivers and inundation maps.
- *Technologies: Flutter, Google Maps Direction API*
- *Techniques: Shortest Path and optimization algorithms*

Guidance Assisting System for visually impaired persons 2019

- Stick with sensors and chest mount camera to process images, notify the details about surrounding to the blind person through a vibration belt. And a user friendly app with voice control capabilities (to find the stick if misplaced or notify relatives if the blind person needs help).
- *Technologies: Arduino Microcontroller, Raspberry Pi, Ultrasonic Sensors, Gyroscope, OpenCV, TensorFlow*
- *Techniques: Sensor Calibration, Vibration Pattern Optimization, Android Studio, Bluetooth Communication*

Various Other Hobby/Course Projects 2018-2019

- Analog Line Follower (PD Controller based), Logic Gate level implementation of a 4-digit pass-code lock, Smart home system with raspberry PI, Wire Bending Machine (CNC)
- *Technologies: Analog and Digital Electronics, Arduino*

ACHIEVEMENTS

IEEEExtreme 14.0 2020

(Country Rank - 9, World Rank - 124 more than 2200 teams)
Task : Algorithmic Programming Competition

Google Code Jam 2020

Selected to round 2 (world rank - 3847 more than 96,000 teams)
Task : Algorithmic Programming Competition

Google KickStart 2020

Round A (world rank - 2777 more than 100,000 teams)
Task : Algorithmic Programming Competition

UOJ Corders v8.0 2019

Second Runners-up (more than 100)
Task : Inter University Algorithmic Programming Competition

Pre-Extreme 2019

Second Runners-up (more than 30 teams)
Task : Intra University Algorithmic Programming Competition

IEEEExtreme 13.0 2019

(Country Rank - 7, World Rank - 172 more than 4000 teams)
Task : Algorithmic Programming Competition

ACES Corders v8.0 2019

Country Rank - 5 (more than 120 teams)
Task : Inter University Algorithmic Programming Competition

ACES Hackathon 2019

Finalists
Project : SAFERO (Safe Route Escape System During Flood)

- SLIIT Overnight Hackathon** *2019*
 Finalists
 Project : Algorithmic Programming Competition
- SLIIT CODEFEST** *2019*
 Merit Award
 Project : You See World (Personal Guidance System to Blind people)
- HACKDEV YOUTH SOCIAL INNOVATION CHALLENGE** *2019*
 Selected to final teams (Get an opportunity and funds to develop our project as a product)
 Project : You See World (Personal Guidance System to Blind people)
- IEEE ADVANCING TECHNOLOGY FOR HUMANITY HUMANITARIAN TECHNOLOGY PRODUCT COMPETITION, GENERAL TRACK** *2018*
 Runners UP
 Project : You See World (Personal Guidance System to Blind people)
- ACES Corders v7.0** *2018*
 Country Rank - 7 (more than 120 teams)
 Task : Inter University Algorithmic Programming Competition
- IEEE SS12 AGE OF INNOVATION PRODUCT COMPETITION** *2018*
 Runners UP
 Project : You See World (Personal Guidance System to Blind people)

TEACHING EXPERIENCE

Teaching Assistant, University of Peradeniya

- CO321 - Embedded Systems *2021 - present*
- CO224 - Computer Architecture *2020 - 2021*

Sessions on algorithmic programming, Hackers Club, University of Peradeniya *2020 - 2021*

EXTRA-CURRICULAR

Active member ACES of the University of Peradeniya *2020 - present*

Active member of the Hacker's club of the University of Peradeniya *2020 - present*

REFERENCES

Prof. Roshan G. Ragel

Professor, Dept. of Computer Engineering

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