

# DININDU THILAKARATHNA

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## PROFILE

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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

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|--------------------------------|-----------------------------|-------------------------|
| 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

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

## ENTREPRENEURSHIP

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| <b>Tronicode Engineering (PVT) Ltd (Director, Founder)</b><br><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

## SKILLS

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

## PROJECTS

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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*

### **Design and installation of fully automation system for Disinfection Chambers for Diyalathalawa Base Hospital, Bandarawela Hospital**

2020

- Atmel microcontrollers, Solenoid valves and Contactors for pump
- *Technologies: C++ Atmel Microcontrollers, Custom PCB Design*
- *Techniques: Embedded systems, Micro controller Programming, 220v Pump Controlling using contactors*

### **Automatic 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, Micro controller 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.
- *Technologies: Embedded system, Integrated circuits*
- *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

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### 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)

## **CO-CURRICULAR**

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Casual Instructor, 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**

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

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

Active member Science Society, Bandarawela Central College *2014 - 2016*

## **OTHER INTERESTS AND HOBBIES**

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3D modeling and digital art Enthusiast.

Designing Embedded systems.

Music

Athletics

## **REFERENCES**

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**Prof. Roshan G. Ragel**

Professor, Dept. of Computer Engineering

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**Dr. Isuru Nawinne**

Senior Lecturer, Dept. of Computer Engineering

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