Md. Abu-Talha Roni

BSc. Engineerig in Electrical and Electronic Engineering
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GitHub Profile
LinkedIn Profile

Education

•BSc. Engineerig in Electrical and Electronic Engineering *CGPA: 3.65/4.00*
Rajshahi University of Engineering and Technology, Rajshahi 2021-Present

•Higher Secondary Certificate *GPA: 5.00/5.00*
Dinajpur Government College, Dinajpur 2018-20

Personal Projects

•Self Balancing Robot

This bot can be balanced on a closed-loop control system using MPU6050

- Balanced upon two wheels and moved based on signals from the transmitter, with recalibration using a switch.
- Component Used: Arduino Nano, MPU6050, HC05 Bluetooth Module.

•Line Following Robot

An autonomous robot that follows a predefined path using sensor feedback and closed-loop control.

- Designed and implemented a PID-controlled system using IR sensors and motor drivers for precise navigation.
- Built with Raspberry Pi Pico, leveraging C++ for real-time decision-making and efficient path correction.

•Accident Detector

A real-time accident detection system that alerts emergency contacts using sensor data and wireless communication.

- Utilized vibration and alcohol sensors with an ESP32-based system to detect accidents and transmit alerts via GSM and NRF modules.
- Technology Used: ESP32, Vibration, Alcohol Sensors, GSM SIM800L, NRF Module, C++.

Publications

•Apparatus and Method for Effective Speed Control of Fast Line Following Robots *Patent*
S. S. Swapnil, S. K. Sarker, A. B. Dibya, M. T. Islam, ***M. A. T. Roni****, K. Muhammad*

Experience

•Industrial Attachment *March 2025 - March 2025*
SILICONOVA Ltd. Onsite

- Gained hands-on experience in RTL design and verification, working with HDL languages (Verilog/VHDL) for ASIC and FPGA development.
- Learned design testing methodologies, including functional verification, synthesis, and DFT (Design for Testability) for semiconductor chips.
- Tools Used: Cadence, EDA Playground.

Technical Skills and Interests

Programming Languages: C/C++, Python, HTML+CSS
Hardware and Embedded Systems: ESP32, Arduino, Raspberry Pi, STM32
Libraries and Frameworks: NumPy, OpenCV, TensorFlow
Web Development: Git, GitHub
Machine Learning & AI: Supervised/Unsupervised Learning, Reinforcement Learning, Computer Vision
Robotics and Control: ROS2, PID Control, SLAM
Areas of Interest: AI for Robotics, Computer Vision, Embedded System
Soft Skills: Problem Solving, Self-learning, Teamwork, Leadership, Presentation, Adaptability

Positions of Responsibility

•Head of Electrical - Team Exertion (RUET) *December 2024 - Present*

- Designed an electrical system for a solar-powered vehicle, including battery management, motor controllers, and solar power integration.
- Collaborated with the mechanical and software teams to optimize vehicle performance and energy efficiency.