

LUCKY AGARWAL

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Bangkok, Thailand

OBJECTIVE

High-achieving Robotics and AI undergraduate (GPA 3.98) with a strong foundation in autonomous systems, embedded control, and full-stack development. Proven track record of engineering end-to-end solutions, from custom PCB design and FOC motor control to SLAM navigation and cloud-based analytics. Seeking to leverage expertise in ROS2, STM32, and Python to contribute to innovative engineering projects.

EDUCATION

- King Mongkut's Institute of Technology Ladkrabang** July 2024 - April 2028
B.Eng in Robotics and Artificial Intelligence
Bangkok, Thailand
 - GPA: 3.98
- TSI International School** August 2020 - June 2024
GCE A levels
Bangkok, Thailand
 - GPA: 3.91

PROJECTS

- Leaf Collection Robot** July 2025 - November 2025
Tools: ESP32, Jetson Nano, LiDAR, Encoder Motors 
 - Built an autonomous and manually controlled leaf-collection robot using the ROS2 framework, combining a Jetson Nano for navigation with an ESP32 for real-time motor and encoder control.
 - Implemented LiDAR-based SLAM to generate 2D maps, detect obstacles, and enable autonomous path following.
 - Integrated encoder-based odometry with LiDAR data to achieve accurate localization and smooth autonomous movement.
 - Designed and tuned the motor-control and roller-collection mechanism to ensure reliable leaf pickup.
- Inventory Management System** July 2025 - November 2025
Tools: FastAPI, Next.js, Prophet, PostgreSQL, Git, Electron 
 - Developed a full-stack inventory management and sales forecasting system for two partner companies.
 - Implemented ETL pipelines, low-stock alerting, and advanced SKU/sales analytics.
 - Built secure REST APIs, optimized PostgreSQL schemas, and integrated Prophet forecasting.
 - Delivered the system as a standalone desktop app and provided user onboarding.
- Air Quality Monitoring Device** December 2024 - April 2025
Tools: ESP32, Various sensors, Python, C 
 - Developed a solar-powered air quality monitoring system with wireless data transmission and real-time environmental sensing.
 - Integrated PM2.5, CO₂, temperature, and humidity sensors into a single monitoring device and transmitted readings to a receiver unit, with optional laptop monitoring.
 - Built a portable receiver unit with a display and LED indicators for real-time air-quality visualization.
 - Conducted controlled indoor and outdoor tests to validate measurement accuracy and system reliability.
- BLDC Motor Control using FOC and MODBUS** December 2024 - April 2025
Tools: STM32, Modbus, FOC, RS485, BLDC Motor, UART, PCB 
 - Developed a BLDC motor control system using the MODBUS protocol over RS485, with an STM32 microcontroller handling real-time communication and speed control.
 - Implemented closed-loop Field-Oriented Control (FOC) with PID tuning, using timer interrupts, SPI-based encoder feedback, and UART interrupt-driven MODBUS processing.
 - Designed and fabricated a custom PCB to house all the components into a single board.

SKILLS

- Programming Languages:** Python, C, SQL
- Technologies:** ROS2, STM32 HAL, Arduino, PlatformIO, Modbus, PostgreSQL, Docker, Git, YOLO
- Embedded Systems:** STM32, ESP32, Arduino, Raspberry Pi, Jetson Nano
- Soft Skills:** Problem solving, Leadership, Communication, Adaptability
- Languages:** English (Proficient), Hindi (Native), Thai (Basic)