

# **Mohamad Kharizal Firdaus**

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## Summary

I am a student majoring in Computer Engineering at the Electronic Engineering Polytechnic Institute of Surabaya (EEPIS). who is currently studying drones, robotics, and the Internet of Things (IoT). I have a keen interest in the world of technology and innovation, and actively seek opportunities to develop knowledge and skills through practical projects, research, and teamwork. My goal is to contribute to creating smart and efficient technology solutions to address real-world challenges. With a strong background in hardware and software, I am committed to continuing to learn and grow, and am ready to become a professional who is able to make a positive impact in the technology industry.

## Work Experience

### PT Java Digital Nusantara – Gresik, Indonesia

Network Computer Technician( September 2022 – November 2022)

- Create a path for wifi installation from server to client.
- Repair Hardware/maintenance components include (computers, laptops, wifi devices as well as small components such as pcb etc).

### EMIRO TEAM PENS - Surabaya, Indonesia

Programmer (Maret 2024 – Present)

- Designing Autonomous programs for Drone Control automatically and autonomously Using C++ programming languages and Linux Os with ROS.
- Create a Simulation World in the Gazebo that will be used for the simulation of the Program.
- Create a program for Computer Vision (detection objects using the YOLO method) that will be used for mission purposes.
- Make a Plan for Drones to move outdoors using Ardupilot and RTK (Real Time Kinematic).
- Integrates the 2d 360 Lidar Sensor (Slamtec S1) as indoor navigation and the Ultra Sonic sensor as the altitude data of the drone.

Team Leader (January 2025 – Present)

- Create and Lead plans, direct and ensure team members tasks are in accordance with the mission and schedule of the team.
- Evaluate the performance of each team member and propose solutions related to the evaluation.

# **Organization And Activities**

#### **PASUKAN PENGIBAR BENDERA PUSAKA KAB.GRESIK– Gresik, Indonesia** Pasukan 45 (1 Agustus 2022 – 17 Agustus 2022)

I was selected as a member of **the Gresik Regency Heritage Flag Hoisting Force (PASKIBRAKA)** as part of **Troop 45**, which is the line of honor in the commemoration ceremony of the 77th Independence Day of the Republic of Indonesia on August 17, 2022. During the training period which lasted from July 15 - August 17, 2022, I underwent intensive coaching that included discipline, marching skills, leadership, and character building. In this task, I played a direct role in the procession of raising the Red and White Flag at the official ceremony at the district level which was attended by regional officials and the general public. This experience was very memorable and gave me valuable lessons about responsibility, teamwork, and the ability to work with focus and dedication under pressure.

**LEMBAGA MINAT BAKAT (LMB PENS 2024) – Surabaya, Indonesia** Departement EVENT (Februari 2024 – November 2024)

This organization is an organization that oversees UKM (Student Activity Unit) I am active as a member of the Event Department at the PENS 2024 Talent Interest Institute (LMB) from February to November 2024.My task is to participate in the planning, coordination, and implementation of campus activities that aim to develop students' interests and talents. I was directly involved in developing the event concept, arranging the flow of activities, establishing cooperation with internal and external parties, and ensuring technical smoothness during the event. This experience strengthened my skills in event management, team communication, and problem solving in the field.

### HIMPUNAN MAHASISWA COMPUTER ENGINEERING (HMCE) – Surabaya , Indonesia

Depertement MINBA (Maret 2025 - Present)

This organization is an official forum that houses all students in the Computer Engineering department. In this organization, I play a role as a member of **the Department of Interests and Talents (MINBA)**, which focuses on developing students' interests and talents in the department. My role includes supporting, accommodating, and facilitating various activities that aim to develop students' potential, both in the academic and non-academic fields.

### PEMATERI UKM DIRGANTARA – Surabaya , Indonesia

(21 Oktober 2024 & 17 Maret 2025)

Being a speaker in the **Aerospace UKM activity**, which was attended by approximately 100 people where I presented material on the basics of drones (*basic drones*), the introduction of *the ArduPilot* system, and how drones work in autonomous *flight*. This material was delivered with the aim of providing participants with a basic understanding of drone technology and its application in automated navigation systems.

# Education

# POLITEKNIK ELEKTRONIKA NEGRI SURABAYA (2023 - Present)

D4 Computer Engineering

- Designed and built a DIY function generator and designed and built a custom power supply.
- Designed and built an analog line follower robot, and successfully secured 1st place in a classroomlevel robotics competition.
- Developed an Android application for booking thesis (TA) books in a library using Flutter for the frontend and PHP with MySQL for the backend and database management.
- Developed an autonomous rover robot capable of performing 2D hallway mapping using the SLAM (Simultaneous Localization and Mapping) method. The project utilized the Robot Operating System (ROS), a 3D LiDAR sensor for environmental scanning, and a Jetson Nano as the processing unit to execute real-time navigation and mapping algorithms.
- Assembled both quadcopter and hexacopter drones using Pixhawk flight controllers, and configured them to operate autonomously using ArduPilot with RTK (Real Time Kinematic).
- Designed and developed a computer vision program for a drone to detect and capture objects using the YOLO (You Only Look Once) algorithm with C++ Language.
- Developed an autonomous navigation drone using a 3D LiDAR sensor, Jetson Nano, and Pixhawk Cube+, programmed in C++ for real-time control and environment mapping.

#### SMKS MASKUMAMBANG 1 DUKUN (2020-2023) Computer and Network Engineering

# Abilities

- **Programming:** C++, Python
- *Electronics:* PCB design, reverse engineering, laptop/PC troubleshooting
- *Embedded Systems: Microcontroller programming with Arduino and ESP32*
- Computer Vision
- Robot Operating System (ROS)
- Project Management
- *Languages:* Indonesian (native), English (basic proficiency)

### Achievements

Finalist of the National VTOL Competition at the 2024 Indonesian Flying Robot Contest by BPTI, Puspresnas, Ministry of Education, Culture, Research, and Technology, Republic of Indonesia.