

Ibrahim Ahmed Saleh

Mechatronics & Robotics Engineer | AI & Automation

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PROFESSIONAL SUMMARY

Innovative Mechatronics Engineer specializing in Robotics, Automation, and AI-driven systems. Skilled in designing and programming intelligent machines using Python, OpenCV, Raspberry Pi, Arduino, and ROS2. Experienced in developing smart control systems, computer vision applications, and IoT-based solutions for industrial and academic use. Dedicated to building reliable, high-performance automation projects that integrate mechanical, electronic, and software components seamlessly.

TECHNICAL SKILLS

- Programming Languages:** Python, JavaScript, Java, C++, MATLAB
- Data Analysis:** Python (Pandas, NumPy, Matplotlib, Seaborn)
- Web Development:** Flask, Node.js, React.js, HTML, CSS, PostgreSQL, SQLite, Django
- Desktop Applications:** KivyMD, PySide6, Tkinter
- Tools & Platforms:** Git/GitHub, Docker (basic), Linux, REST APIs
- Computer Vision & AI:** OpenCV, YOLO, Machine Learning, TensorFlow
- Version Control & Deployment:** Git, GitHub, REST APIs, Docker (Basic)
- Statistics & Machine Learning:** Regression, Classification, Predictive Modeling

WORK EXPERIENCE:

Robotics & Automation Trainee.

Duration: 2023

Institution / Program: Robotics & Automation Bootcamp

Key Responsibilities:

- Developed and tested robotic control systems using Arduino and Raspberry Pi
- Designed automation solutions integrating sensors, motors, and vision systems
- Implemented real-time image processing using OpenCV and Python
- Simulated mechanical components using SolidWorks for robot modeling

Embedded Systems & IoT Developer (Training-Based).

Duration: 2023

Institution / Program: AI, Computer Vision & IoT Projects Training

Key Responsibilities:

- Designed IoT-based systems using microcontrollers and sensors
- Built AI-driven vision systems for smart object detection
- Created communication protocols using MQTT and REST APIs
- Programmed Raspberry Pi to act as central controllers for automation tasks

WORK EXPERIENCE:

Technical Internship – Controlling Systems & Steam Power Station.

Duration: 2022

Institution / Program: Technical Power Training Program

Key Responsibilities:

- Understood and participated in control loops of steam-powered operations
- Assisted in troubleshooting automation signals and PLC systems
- Interpreted electrical schematics and sensor-actuator integrations
- Prepared reports on system diagnostics and proposed improvements

Entrepreneurship Trainee – Start Your Business (SYB)

Institution: Entrepreneurship Program

Duration: 2021

Key Responsibilities:

- Gained fundamentals of business modeling and innovation
- Applied technical skills into potential product development ideas
- Learned strategic planning, budgeting, and market analysis
- Collaborated on a prototype pitch for a tech-driven solution

PROJECTS

Gold Store Safety System (Patent Project Contribution)

Technologies: Python, Raspberry Pi, Load Cells, PySide6

- Engineered a real-time security system for gold stores using load-cell sensors to detect unauthorized removal of items
- Programmed a Raspberry Pi controller to monitor weight variations and trigger instant alerts for discrepancies
- Designed a desktop monitoring interface with PySide6 for live visualization and data tracking
- Contributed as the lead developer to a project that was submitted for patent registration for its innovative real-time monitoring system

Smart Attendance System (AI-Based)

Technologies: Python, OpenCV, Flask, KivyMD

- Developed a facial recognition system to automate classroom attendance
- Reduced manual attendance time by 80% and improved accuracy to 99%
- Integrated real-time face detection and REST APIs for data syncing
- Designed GUI for desktop interface using KivyMD

Color-Based Sorting Robot

Technologies: Python, OpenCV, Raspberry Pi, Arduino, Robotic Arm, SolidWorks

- Engineered a robot to classify and sort objects by color using AI vision
- Built and controlled a conveyor belt and robotic arm system
- Applied real-time color detection and actuator control
- Modeled mechanical structure using SolidWorks
- Authored a scientific paper on the project, submitted to the University of Science and Technology for publication in the university magazine

EDUCATION

Bachelor of Science in Mechatronics Engineering

2024

University of Science and Technology – Aden, Yemen

| GPA: 4.0 / 4.0 | First Class Honors

Relevant Coursework: Robotics, Embedded Systems, Control Systems, AI

Final Year Project: Color-Based Sorting Robot

COURSES

Python Development, Udemy

2023

Web Development, Udemy

2024

Data Science & Machine Learning, Udemy

2025

AI For Everyone, Coursera

2025

ROS 2 (Robot Operating System), Udemy

2025

ICDL Certificate, Aden

2021

English Language Diploma, MALI Institute, Aden

2018-2019

LANGUAGE

Arabic: Native

English: Professional Working Proficiency