

Mohammad Ibrahim Memon

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PROFESSIONAL SUMMARY

Robotics Engineer specializing in autonomous systems, embedded development, and hardware-software integration. Skilled in handling complex challenges, including simulation setup, robotics design, and system validation. Led development of multi-robot task distribution systems, autonomous mobile platforms, and an award-winning underwater ROV. Proficient in ROS / ROS2, C++ / Python and hardware prototyping, passionate about building innovative robotic solutions that bridge physical systems with intelligent automation.

EXPERIENCE

Research Assistant GmbH, Kelo Robotics | Stuttgart, Germany

05/2024 – 08/2024

- Set up Isaac Sim and Webots environments for robotic simulation tasks.
- Researched and compared simulation frameworks for multi-agent navigation and control.
- Tested integration pipelines and coordinated with team for deployment-ready setups.

Robotics System Engineer - Integration and validation, Unbox Robotics Pvt. Ltd | Pune, India 06/2022 – 07/2023

- Built test frameworks to test developed features/fix bugs.
- Performed root cause analysis on development failures.
- Debugged and resolved site issues; generated detailed reports.
- Executed DFMEA to enhance system reliability and reduce potential failure risks.
- Programmed and automated testing tools, improving feature validation.
- Tested control boards using oscilloscope and a multimeter, and Benchmarking runs, integration of control boards and mechanical setups.
- Collaborated with development teams to identify and resolve integration challenges.
- Collaborated in an Agile team as Scrum Master
- Led system runs, Robot deployment, On-site support, and customer demos.

Embedded System Engineer, DashDot Robotics Pvt. Ltd | Ahmedabad, India

03/2021 – 02/2022

- Designed and prototyped hardware systems from scratch, ensuring optimal functionality and performance.
- Conducted circuit troubleshooting and root cause analysis (RCA) to resolve technical issues effectively.
- Developed firmware at the integration level, incorporating and calibrating various sensors.
- Mentored interns, guiding project development and promoting technical growth.

PROJECTS

Multi-Robot Task Distribution | ROS2, Python, GitHub Actions, SLAM, Linux, Git

Sept 2024

- Scalable system for task allocation among multiple autonomous robots in Gazebo environments.
- Robots coordinate to collect and deliver parcels from various locations to a central depot.
- Set up CI pipelines using GitHub Actions for automated testing.
- Used Codacy to maintain code quality through static analysis.
- Improved development workflow through automation and code checks.

Autonomous Mobile Robot, AMR | ROS, Python, RaspberryPi, Arduino, I2C/SPI/UART, SLAM, LiDAR, Camera, Linux, EagleCAD

- Built an AMR that navigates unknown spaces using assigned coordinate goals.
- Led the end-to-end design, including circuit layout, power system, and full software stack integration.

Underwater ROV | Python3, ROS, ArduSub, Circuit Design, Linux, Matlab

Jan 2022

- Awarded Top 5 Innovation Award with government funding.
- Designed ECS with bi-directional relays and led thruster manufacturing in-house.
- Led a team of 5 engineers, facilitating cross-functional communication with mentors, Technical documentation, academic institutions, and project stakeholders.
- Developed a custom Electronic Control System (ECS) with bi-directional functionality using DPDT relays, improving system adaptability and response time.

SKILLS

Programming Languages : Python, C++, Matlab

Robotics Frameworks : ROS/ROS2, Gazebo, IsaacSim, Webots, Mujoco

Libraries & Tools : Numpy, Pandas, OpenCV, PyTorch, Simpy, Matplotlib, Simulink

Hardware & Electronics : Circuit Design, Microprocessor, Eagle CAD, Microcontrollers, Soldering, Prototyping

Testing & QA : RCA, DFMEA, Test Frameworks, Benchmark Testing

Version Control & CI : Git, GitHub Actions, Linux, CI/CD Development

EDUCATION

Hochschule Bonn-Rhein-Sieg, Germany

Masters in Autonomous Systems

Sept 2023 – Ongoing

U V Patel college of engineering, India

Bachelor of Technology in Mechatronics | GPA: 7.5

June 2018 – May 2022

AWARDS AND ACCOMPLISHMENTS

Top 15 National Finalists, Anveshan Nationals, AICTE, 2020

Student Achievement Award, Ganpat University, 2021

Third Place, Anveshan West Zone, University of Mumbai, 2020

CERTIFICATES

ROS for Beginners: Basics, Motion, and OpenCV (Udemy, 2023)

ROS for Beginners II: Localization, Navigation and SLAM (Udemy, 2023)

ROS2: Path Planning and Maze Solving with Computer Vision (Udemy, 2024)

PUBLICATION

Rushikesh Fula Bagul, Ibrahim Mustak Memon, *Patent Publication: "An Inventory Management, Tracking and Consumption Predicting System using Intelligent Container Box and Central Server"*, Patent Publication No: IN 202021029069 A (2020)

LANGUAGES

English – C1

German – A1



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