

# BONNY BABU

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## Skills and Accomplishments

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### Skills

- **Robotics System & Automation:** Robotic Manipulators | ABB Yumi & Gofa | TM5 | HMI | PLC | Robotic Manipulators | Collaborative Robots
- **Simulation & Design:** RViz | RobotStudio | RoboDK | MoveIt | Gazebo | AutoCAD | Fusion 360
- **Programming & Development:** Python | ROS 1 & 2 | PLC Programming | ABB RAPID Programming | TM Flow Programming | Sysmac Studio
- **Embedded Systems & Hardware:** Raspberry PI | Arduino | Nvidia Jetson | Motor Control | Sensor Integration
- **Soft Skills:** Self-motivated | Problem-solving | Multitasking | Team Collaboration | Communicative | Adaptability | Critical Thinking

### Accomplishments

- Mentored junior engineers in ABB and PLC programming, accelerating onboarding.
- Integrated MQTT-based IoT data publishing for predictive maintenance and real-time monitoring.
- Developed a ROS-based semi-digital twin with RViz for real-time robot diagnostics.
- Optimized robotic path planning, cutting cycle time from 2m 30s to under 1m.
- Designed modular PLC function blocks for reusable, maintainable automation logic.
- Enabled cell-wise testing in robots without PLC for independent validation.
- Introduced dry-run capability to ensure process reliability before deployment.

## Professional Experience

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### Robotics Engineer

May 2021 - Present

Simelabs - Digital, AI, Metaverse, Robotics, VLSI • Ernakulam, Kerala, India

Focused on results and impact:

- Programmed ABB Yumi, Gofa, and Omron TM5 robots for three assembly cells in SmartDose Flex Automation.
- Developed modular PLC function blocks and integrated EtherNet/IP for seamless robot-cell communication.
- Assisted in PLC-vision system communication using TCP sockets for real-time object detection and validation.
- Optimized robotic motion, reducing cycle time and improving efficiency in automated assembly processes.
- Leveraged Adapter & Factory design patterns for scalable and maintainable robotics software development.
- Designed middleware bridging ROS 2 DDS and WebSockets for real-time robot monitoring in Sime-World.
- Configured TurtleBot 3 and built a realistic simulation environment for navigation testing.
- Implemented sensor fusion techniques to enhance localization accuracy and improve path planning.
- Implemented real-time video streaming for patient monitoring in VitalCAM.
- Developed test automation for ISave, a ventilator-sharing device, with automated test execution and reporting.

### MEP Design Engineer (Electrical)

January 2020 - April 2021

Path BEE Engineers and Contractors • Ernakulam, Kerala, India

Focused on results and impact:

- Designed and maintained electrical single-line diagrams (SLDs) and layouts using AutoCAD software.
- Conducted site supervision ensuring design implementation and compliance with safety regulations.
- Managed procurement activities and supervised operations for government projects.
- Performed load calculations and equipment selection to optimize electrical system performance.

- Developed and reviewed technical documentation, including schematics, BOMs.
- Troubleshoot and resolved electrical issues during installation and commissioning phases.
- Ensured regulatory compliance by adhering to national and international electrical standards.

## Education

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Bachelor of Technology [EEE] College of Engineering, Aranmula	APJ Abdul Kalam Technological University
Graduation Year: 2020	
Diploma of Education [MEP] MTTC International LLC	STED Council
Graduation Year: 2019	