PRADEEP KUMAR S

ELECTRICAL ENGINEER, PLC PROGRAMMER & HMI DEVELOPER

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PROFESSIONAL SUMMARY:

Electrical Engineering graduate with practical experience in PLC programming and HMI systems. Proficient in Programming, electrical troubleshooting, and optimizing control logic and electrical systems to enhance production efficiency. Demonstrated ability to support maintenance activities, reduce downtime, and ensure smooth operation of industrial automation systems. Passionate about pursuing a career in industrial automation and drive systems, with a strong focus on maintenance engineering and system development.

TECHNICAL SKILLS:

1. AUTOMATION & PROGRAMMING:

- PLC Programming for Delta (ISP, WPL), Omron (CX programmer), Allen Bradley (RS Logix 1000), Mitsubishi (GX works 3).
- HMI Programming.
- Ladder Logic programming.
- Python programming.

2. ELECTRICAL SKILLS:

- Electrical machines, Power electronics.
- Digital electronics, Power system and switch gears.
- Basic knowledge of renewable and grid integrated renewable energy.
- Control Panel wiring.

3. SOFT SKILLS:

- PLC developer and troubleshooting.
- HMI developer.
- Electrical Maintenance.
- Production planner according to the requirement.
- Team co-ordination and Problem solver.

PLC PROJECTS:

1. TEMPERATURE SENSOR FOR ROOM COOLING (Delta ISP software):

Designed and implemented a temperature-based fan control system using a start button(X0) and zone comparator (ZCP), where one fan(Y0) operates below 10°C, two fans(Y1) operate between 10–40°C, and three fans(Y2) operate above 40°C.

2. AUTOMATIC DOOR CONTROL (Omron CX programmer, Allen Bradley RS Logix 1000, HMI interface):

Developed an automatic door control system using an IR sensor as input (X0). The IR sensor detects human/object presence to open the door, which is monitored by two end-position limit switches (X1, X2). Incorporated a 10-second delay (TMR) before automatic closing, with a middle-position limit switch(X3) to reset the process.

3.CONTROL OF FEEDER, GRINDER, AND CONVEYOR SYSTEM (Allen Bradley RS Logix 1000):

Developed a sequential control system using PLC, where X0 functions as the start button. Upon activation, the feeder (Y0) turns ON, followed by the grinder (Y1) after 5 seconds, and the conveyor (Y2) after another 5 seconds to transport raw material. Incorporated X1 as the stop button to shut down all operations in sequence.

4.AUTOMATIC AND MANUAL WATER TANK FILLING CONTROL SYSTEM (Mitsubishi GX works 3, Omron CX programmer):

Designed an automatic/manual water tank filling system using PLC. In manual mode, the motor (Y0) is started via the start button (X0) and stopped manually with the stop button (X2) once the tank is filled. In automatic mode, the motor (Y0) starts when the low-level sensor (X3) detects low water and stops when the high-level sensor (X4) detects full level.

5.FACTORY PROCESS CONTROL MODEL (TANK FILLING, MIXING & HEATING) USING (Mitsubishi GX works 3, HMI interface):

Developed a PLC program for a process model using start/stop(x0) controls and tank-level sensors LLS(x1), MLS(x2), HLS(x3). Automated filling with two inlet valves (y0, y1), mixer(y2) operation with timer, and boiler heating until rated temperature(x4). Enabled manual outlet(y3) discharge after processing.

HMI PROJECTS:

1. FACTORY PROCESS CONTROL MODEL (TANK FILLING, MIXING & HEATING):

Developed an HMI interface simulating a tank using a bar chart for real-time visualization. Implemented a maintained switch to start/stop the process, integrated three sensors for level detection, and controlled two motors for different operations.Designed a timer display to indicate mixer run time and added a manual temperature button to discharge raw material from the tank.

2. AUTOMATIC DOOR CONTROL:

Developed an HMI-based automatic door control system using an IR sensor for object/human detection. Created a graphical display element to visualize door movement. Integrated two limit switches to detect full opening, initiated a 10-second time delay, and programmed automatic closing. A centre limit switch resets the entire process once the door close completely.

ACADEMICS PROJECT:

1.LANDMINE DETECTION ROVER:

Programmed ESP32 and integrated ultrasonic sensor and GSM/GPS modules for obstacle detection and real-time tracking. Implemented motor control using DC drives and navigation logic using embedded C.

2.VEHICLE DETECTION TO PREVENT ACCIDENTS:

Developed an ultrasonic based proximity alert system using Arduino IDE for long vehicles to prevent collision during turns. Designed and tested control algorithms for obstacle detection and automatic braking.

WORK EXPERIENCE:

BLUESTAR LTD – PRODUCTION AND MAINTENANCE ENGINEER
JUNE 2024 – JUNE 2025

Experienced in Production and Maintenance Engineer skilled in electrical maintenance, troubleshooting motors, PLCs, and sensors. Proven ability to reduce downtime, support production targets, and improve equipment reliability through preventive and corrective maintenance. Key responsibilities and achievements include:

- Implemented **preventive and corrective maintenance** practices, improving equipment reliability and overall efficiency.
- Conducted **root cause analysis (RCA)** on recurring breakdowns and implemented long-term solutions to reduce failure rates.
- Developed and followed **maintenance schedules** to reduce emergency breakdowns and extend machine life.
- Coordinated with vendors and cross-functional teams for **spare parts management** and timely issue resolution.
- Troubleshot and repaired **motors, PLC systems, sensors, and automation equipment** to minimize unplanned downtime.
- Supported **production teams** in achieving daily, weekly, and monthly targets by ensuring maximum machine availability.
- Planned production according to requirement and assisted my team to achieve the monthly and daily targets.

EDUCATION:

RMK Engineering college | B.E in ELECTRICAL AND ELECTRONICS| CGPA: 8.6 **2021 - 2024**
SRI DURGA DEVI polytechnic college | DIPLOMA in ELECTRICAL AND ELECTRONICS| PERCENTAGE: 97% **2018 - 2021**

ACHIEVEMENTS:

Intra-College paper presentation **(VEHICLE DETECTION TO PREVENT ACCIDENT)** - 2020
Intra-College paper presentation **(SEWAGE ROBOT)** – 2023

CERTIFICATES:

SIEMENS ONLINE TRAINING: Siemens Ladder logic programming.
UDEMY: Basic Ladder logic programming for (Delta, Siemens, Allen Bradley, Omron, Schneider).
EDUONIX: AutoCAD electrical designing.
NPTEL: Non-Conventional energy resource.
NIIT: Python Programming.
PUMO TECHNOVATION: PLC programming for (Delta, Omron, Allen Bradley, Mitsubishi), HMI programming.

INTERNSHIP:

SOUTHERN RAILWAYS – 20 DAYS
VISHNU PRIYA PAPERMILLS – 20 DAYS

LANGUAGE:

Tamil (Native), English (Fluent), Telugu (Intermediate), Hindi (Basic)