MADHUMITHA M

Instrumentation & Control Engineering Graduate

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PROFESSIONAL SUMMARY

Instrumentation and Control Engineering graduate with industrial exposure and academic project experience in automation, PLCs, instrumentation, sensors, embedded systems and IoT. Familiar with Arduino, MATLAB, C, Java, sensor interfacing and basic troubleshooting. Quick learner with good problem-solving, teamwork and communication skills, seeking an entry-level engineering opportunity.

TECHNICAL SKILLS

Instrumentation & Process Control: Process Variables – Pressure, Temperature, Level, Flow | Instrumentation & Sensors | Smart Transmitters | Transducers | 4–20 mA Loops | Control Valves & Actuators | I/P Converters | Positioners | PLC Fundamentals

Calibration & Engineering: Instrument Calibration & Commissioning | P&ID Reading | Wiring Schematics & Loop Diagrams | Control Panels & Wiring | Technical Reporting | Engineering Documentation

Embedded Systems & IoT: Arduino IDE | Microcontrollers – ATmega/ESP32 | Sensor Interfacing – I2C, SPI | Remote Cloud Monitoring | Data Acquisition (DAQ) | Embedded Systems | IoT

Software & Programming: MATLAB | Simulink | C | Java | Digital Tools

Testing & Troubleshooting: Loop Continuity Testing | Hardware Fault Finding | Multimeter Diagnostic Routines | Panel Wiring Basics | Troubleshooting

INDUSTRIAL EXPOSURE

ARCUS AUTOMATION PVT. LTD., CHENNAI — Industrial Visit

- Gained exposure to defect detection scanners and their integration with manufacturing lines.
- Observed scanner-based defect detection, data reporting, and analysis for improving production quality.
- Learned about technical documentation, SOPs, user manuals, and deployment procedures.

IA FLOW ELEMENTS PVT. LTD. — Industrial Visit / Documentation & Quality Exposure

- Gained exposure to engineering documentation and quality assurance activities in a manufacturing environment.
- Observed document preparation, checking of accuracy and completeness, and quality-related processes.
- Gained practical understanding of manufacturing workflows and engineering standards.

PROJECTS

IoT Integrated Multi-Sensor Framework for Continuous Vital Monitoring and Fall Detection — Final Year Project

- Developed a real-time embedded monitoring system using multiple sensors for continuous data acquisition and fall detection.
- Interfaced MAX30100, temperature sensor and accelerometer for multi-parameter sensing.
- Implemented sensor interfacing, embedded data processing and IoT-based remote monitoring.
- Integrated remote alerts for detected falls and tested the prototype for continuous sensor-data monitoring.

Temperature and Humidity Monitoring Using IoT

- Developed an Arduino-based temperature and humidity monitoring system using DHT11.
- Implemented IoT-based remote monitoring of sensor data.

Automated Water Level Control System

- Developed an Arduino-based automatic water-level control system using a water-level sensor, relay and pump.
- Implemented automatic control to reduce manual intervention and prevent water overflow.

EDUCATION

B.E. Instrumentation and Control Engineering — Saranathan College of Engineering | 2022–2026 | 76.4%

HSC — CBSE | 2021–2022 | 65.8%

SSLC — CBSE | 2019–2020 | 74.8%

CERTIFICATIONS

- NPTEL – Java Programming – Elite + Silver
- NPTEL – Introduction to Industry 4.0 and Industrial Internet of Things – Elite
- MATLAB Onramp – Course Completion

ACTIVITIES

- Organised a Machine Learning workshop.
- Presented a technical paper on Embedded Systems at SASTRA University, Thanjavur.
- Participated in Smart India Hackathon 2024.
- Attended workshops on Embedded Applications.
- Attended a two-day workshop on Machine Applications, Instrumentation and Control.

CORE COMPETENCIES & LANGUAGES

Core Competencies: Problem Solving | Critical Thinking | Effective Communication | Teamwork | Adaptability | Quick Learning | Time Management

Languages: Tamil | English