PRATHA PATEL

Embedded Hardware | IoT Innovator | VLSI Enthusiast

ABOUT ME

Highly organized and detail-oriented Electronics Engineering professional with a proven ability to stay focused and dedicated to achieving goals. Known for stepping naturally into leadership roles and ensuring timely project completion. I am passionate about learning and continuously expanding knowledge, particularly in Electronics and VLSI. I aim to leverage my skills and expertise to contribute meaningfully to cutting-edge projects in the semiconductor and automation industries.

CONTACT

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CERTIFICATIONS

Winter School, A conference to shape the future of semiconductor technology
CeNSE, IISc – 2024

Learn the art and science of PCB Design with Eagle
Udemy – 2024

Symposium on Research Embedded Learning
MPSTME – March 2024

Bootcamp from zero to hero in Python
Udemy – February 2022

EDUCATION

Mukesh Patel School of Technology, Management and Engineering
2022 - Present
B. Tech (Integrated) Electronics & Telecommunication
CGPA – 3.93/4

Mukesh Patel School of Technology, Management and Engineering
2019 - 2022
Diploma in Electronics & Telecommunication
CGPA – 3.90/4

WORK EXPERIENCE

EETA Automation Systems — **Embedded Hardware & IoT Engineer**
May 2024 – October 2024
Projects - Parking Tower Automation, Yarn Breakage Detection & Yarn Tension Monitoring System, and Puzzle Parking Automation.

- Designed and implemented control systems for industrial automation.
- Developed PCB designs using Proteus.
- Programmed microcontrollers for real-time monitoring, and control.
- Integrated sensors, actuators, and communication protocols.
- Conducted hardware testing to meet industry standards and ensure system reliability and performance.

Databyte Services and Systems — **Team Lead & Hardware Engineer**
June 2022 – June 2023
Project - E-Rickshaw Digital Dashboard.

- Led a team in designing and developing, including sensor integration, display programming, and control system optimization.
- Designed and tested embedded hardware to support real-time data acquisition and processing.
- Programmed microcontrollers for seamless data communication between sensors and dashboard modules.

xLM, LLC – Continuous Validation — **Test Automation Developer**
December 2022 – June 2023
Projects - CDMS Test Automation, and AODocs Workflow Enhancement.

- Implemented SDLC processes for validating Life Science applications.
- Developed test automation scripts for workflows and validating document management systems.
- Documented test plans, results, and insights to support validation and compliance requirements.

INTERESTS

VLSI Physical Design
Analog & Digital Electronics
Internet of Things (IoT)
Embedded Hardware
Wireless Sensor Networks

PROGRAMMING

C++, C, C#
Embedded C
Python
Assembly Language
SQL

EDA TOOLS

Proteus
KiCAD
Autodesk Eagle
Easy EDA
Fritzing
Multisim
SPICE

COMMUNICATION PROTOCOLS

UART, I2C, SPI, USB, Ethernet, RS485, Modbus, MQTT, BLE, TCP/IP, HTTP, UDP

EMBEDDED SYSTEMS PLATFORMS

Arduino
Raspberry Pi
STM32
ESP8266/ESP32
ATMega

SOFTWARES

Arduino IDE
MATLAB
Cisco Packet Tracer
VS Code
STM32 Cube IDE

DEVELOPMENT TOOLS

Jira
Azure DevOps
Git

KEY PROJECTS

Yarn Breakage Detection & Monitoring System — 2024

Developed a real-time automated system to detect yarn breakages and operated yarn cutter in high-speed textile machinery, optimizing production efficiency.
PCB Design: KiCAD, Proteus.
Hardware: Raspberry Pi, Arduino Uno, Arduino Pro Mini, RS485 Modbus modules, Optocouplers, LEDs, MUX/DEMUX ICs.

Parking Tower Automation System — 2024

Developed an automation system for a 21-level parking tower with a turntable, integrating real-time control and sensor systems for efficient vehicle parking and retrieval.
PCB Design: KiCAD, Proteus.
Hardware: Raspberry Pi, Arduino Uno R4 WiFi, Arduino Mega, ESP32, VFD, STM8S103F3, RFID readers, Optocouplers, LEDs, RS485 Modbus, VFD, AC Motors.

Plant Health Monitoring & Automatic Watering System — 2023

Developed a System integrating real-time data, automation, user interaction, and notifications for optimal plant care.
Hardware: Esp32S Wi-Fi Module, Arduino Uno, Breadboard Power Supply, Temperature Sensor, 5V DC Relay & Water Pump, Sunlight Sensor, Air Quality Sensor, Push Button.
Software: Arduino IDE, Fritzing, Blynk IoT.

Smart Women Safety Device — 2023

Developed a wearable IoT solution combining discrete communication, threat detection, and user-friendly design for real-time safety in solo travel and unfamiliar settings.
Hardware: Esp32, Buzzer, Button, GPS Module, GSM Module, Camera Module.
Software: Arduino IDE, Fritzing, Blynk IoT.

E-Rickshaw Digital Ecosystem — 2022

Developed a digital dashboard solution, enhancing safety, efficiency, and fleet management within the broader e-rickshaw ecosystem with real-time insights and advanced features.
Hardware: Arduino Nano, GPS Module, Temperature Sensor, Mobile Charging Circuit, Battery, SD Card Module, Relay.
Software: Arduino IDE, EasyEDA, Fritzing.

IoT based Smart Parking System — 2022

An IoT solution that provides real-time updates on parking spot availability and optimize urban parking resources.
Hardware: Esp32S Wi-Fi Module, Ultrasonic Sensor, GPS Module, I2C LCD.
Software: Arduino IDE, Fritzing, ThingSpeak.

Health Band – Health Assistant for Elderly — 2022

Developed a wearable device featuring real-time vital sign monitoring, fall detection, and automatic notification to emergency contacts, addressing urgent needs for efficient healthcare solutions in an aging population.
Hardware: Esp32 Wi-Fi Module, Temperature Sensor, Pulse Sensor, Accelerometer, Buzzer, Push Button.
Software: Arduino IDE, Fritzing, Blynk IoT.

Laser Tripwire Security Alarm System — 2021

Developed two versions of a LASER Tripwire Alarm: one set with a push button and a more secure version requiring a passcode.
Hardware: Arduino Uno, Laser, Buzzer, Push Button, Keypad, Light Sensor.
Software: Arduino IDE, Fritzing.