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Electronics and Communication Student | Embedded Systems & IoT Developer

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Summary

As an enthusiastic second-year electronics and communication student, I am proficient in embedded systems and IoT development, with hands-on experience in programming languages like Embedded C and C++. I have worked with various microcontrollers and have a solid understanding of PCB design and embedded development tools. I am keen to contribute my skills to innovative projects that make a difference.

Experience

Rocketerrs India

Model Rocket Developer

Model rocket development.

- Developed a ground ignition system for model rockets.
- Designed rockets using Openrocket software.
- Independently launched a Level 1 rocket.

Education

MIT World Peace University

Pune

Bachelor of Engineering in Electronics and Communication

Skills

Embedded Systems: Arduino, ESP32, Raspberry Pi, STM32, AVR (ATmega) chips

IOT software : NodeRED, Grafana , InfluxDB · Your Skill

Communication Protocols: WiFi, LAN, LoRa,UART,I2C,SPI

Software/IDEs: Arduino IDE, ESP32 IDF, STM32 Cube IDE, Atmel Studio 7

Programming Languages: Embedded C, Bitwise Programming

Other software : Blender , Open rocket

PCB design : Altium designer , kiCad (custom footprint & symbol design)

Projects

1} NASA SpaceApps Challenge: Exoplanet Exploration Simulator

An interactive simulator and educational experience for exoplanet exploration.

- Participated in the NASA SpaceApps Challenge, creating an interactive simulator and educational experience on exoplanet exploration.
- Designed an imaginary exoplanet to illustrate the challenges of interplanetary migration.
- Developed a simulator in Unity (C#), visualizing exoplanets and presenting data interactively for users, especially aimed at inspiring new space explorers.
- Processed data on hundreds of exoplanets using Python and created an encyclopedia in the simulator.
- Generated a 3D model of the planet, including custom textures created with Blender and Photoshop.
- Composed original background music to enhance the user experience.

2} HACKMIT 2024: Smart CMS Lighting System

A smart streetlight solutions for enhanced energy efficiency.

- Developed a smart street lighting system to improve energy efficiency and maintenance management.
- Built a network of smart streetlights using ESP32 mesh protocol for communication.
- Implemented automatic on/off functionality based on ambient light conditions.
- Developed a machine learning model to monitor light intensity, predicting maintenance needs.
- Created automated maintenance and malfunction alerts to streamline repairs and reduce operational costs.

Projects

13} Designing and Development of a Pressure Transducer-Based Equipment with a Well Cap for Measurement of Heads in Autoflow Wells

Pressure transducer-based device for measuring water heads.

- Designed and developed a pressure transducer-based device to measure the water head in autoflow wells.
- Integrated sensors to measure water levels and trigger alerts for overflows or water shortages.
- Developed a system that enhanced water use efficiency and environmental sustainability.

24} STM32F4 Firmware Development for Communication Protocols

Embedded Systems & IoT Development

- Designed and implemented drivers for SPI, UART, and I2C protocols on STM32F4 using Embedded C, enabling seamless communication with peripheral devices.
- Optimized code structure for modularity and reusability, streamlining development across STM32 projects.
- Verified protocol performance through rigorous testing and debugging, ensuring reliable data transmission with minimal latency.

35} AVR Development Board for ATmega32 TQFP Version

https://lnkd.in/dkPxRrAr

A development board for the ATmega32 TQFP microcontroller.

- Developed a cost-effective, reliable, and accessible development board for the ATmega32 TQFP microcontroller.
- Focused on affordability, compact design, and reliability for both engineers and hobbyists.
- Included a standard ISP header for programming, multiple input options for power supply, and exposed essential GPIO pins for flexible development.