

ABHIVARDHAN TIPPANI

+91 7702745595 - varmaabhivardhan@gmail.com - [linkedin.com/in/abhivardhan-varma](https://www.linkedin.com/in/abhivardhan-varma) - <https://github.com/Abhigit2504>

EDUCATION

Indian Institute of Information Technology
Electronics and Communication Engineering

Sri City, Andhra Pradesh, India
2021-2025

Key Coursework: Web Software Construction (JavaScript), Data Structures & Algorithms, Signal Processing, Embedded Systems, VLSI Design, Analog Circuits, Network Theory, Power Electronics

TECHNICAL SKILLS

Programming Languages: C++, C, Java, JavaScript, React JS, NodeJS, MySQL

Libraries and Tools: Embedded C, Matlab, Eagle Desk, LT spice, Git, Firebase

Areas of Interest: VLSI Design & Nanoelectronics, Embedded Systems, IoT, Quantum Computing & QCA Technology

PROJECTS

• IoT Device Control Using SEMG Sensor — B.tech project

- Developed an innovative system to control IoT devices using surface electromyography (sEMG) sensors.
- Captured and processed muscle activity signals to translate them into real-time commands for IoT devices.
- Enabled hands-free, gesture-based control, improving accessibility and interaction with smart devices.
- Integrated sEMG sensors with IoT platforms for seamless communication and automation.
- Demonstrated expertise in IoT, signal processing, and human-computer interaction through real-time device control.
- Tested and validated the device in real-world scenarios, achieving over 95% accuracy in obstacle detection and seamless connectivity with the mobile application.

• Project on QCA Design — A VLSI Project

- Designed and simulated QCA-based digital circuits, exploring low-power and high-speed alternatives to traditional CMOS technology.
- Implemented advanced VLSI techniques to optimize circuit performance and reduce power consumption.
- Demonstrated expertise in emerging nanoelectronics technologies, focusing on Quantum-dot Cellular Automata (QCA).
- Utilized simulation tools to analyze circuit behavior, validate logic functionality, and assess power efficiency.

• Water Quality Monitoring System. — Embedded Systems

- Designed and developed a real-time water quality monitoring system using embedded systems and IoT for accurate detection of pH, turbidity, temperature, and dissolved oxygen levels.
- Optimized water usage and reduced waste by 20% through automated data-driven insights and wireless communication (Wi-Fi/Bluetooth).
- Implemented I2C communication protocols and embedded C/C++ programming for seamless sensor integration and efficient data processing.
- Enhanced environmental sustainability by enabling real-time alerts for water contamination, improving resource management and conservation efforts.

• Based Smart Blind Stick — IoT Project

- Developed an intelligent navigation aid for visually impaired individuals using IoT-enabled sensors for real-time obstacle detection and avoidance.
- Integrated GPS, Bluetooth, and wireless communication to transmit location data and send emergency alerts to a companion app, enhancing user safety.
- Implemented vibration feedback and audio cues for intuitive, hands-free obstacle detection, improving mobility and independence.
- Optimized sensor integration and IoT protocols (e.g., MQTT, Wi-Fi, Bluetooth) to ensure seamless real-time data transmission and minimal latency.

EXTRACURRICULAR ACTIVITIES

- **Event Coordinator** in university fests
- **Executive member** in Language Club and Internet of Things