

Hemasai Reddy

India | Contact No: 9059587397

Email: hemasaireddy2006@gmail.com

Education

Amrutha University, Coimbatore, India
B.Tech. (Pursuing)

2023 – 2027

Skills

Programming: Python, Java

Full-Stack Development: Frontend and backend fundamentals, API integration, basic deployment workflows

Additional Skills: Problem-solving, debugging, algorithmic thinking, version control, teamwork

Projects

Facial Expression Recognition using CNN with Digital Image Processing Enhancements

- Designed a CNN-based deep learning model capable of recognizing multiple facial emotions with high accuracy.
- Utilized digital image processing techniques such as histogram equalization, noise reduction, and feature enhancement to improve dataset quality.
- Implemented image augmentation to expand dataset diversity and avoid overfitting.
- Evaluated model performance using metrics like accuracy, F1-score, and confusion matrix.

Near-Crash Analysis in Smart Transportation

- Researched vehicular movement patterns to detect near-crash incidents using sensor and trajectory-based data.
- Developed algorithms to identify risky driving behavior such as sudden braking, unsafe lane changes, and close-proximity alerts.
- Proposed analytical models that can help transportation authorities reduce accident risks.
- Contributed to smart mobility frameworks aimed at improving urban road safety.

Enhancing Road Safety Through Edge Computing and Computational Intelligence

- Built an edge-computing architecture that processes road safety data in real-time, reducing latency and dependence on cloud infrastructure.
- Applied computational intelligence algorithms for hazard detection, driver alerting, and real-time decision-making.
- Designed a scalable and energy-efficient edge node model suitable for on-road deployment.
- Demonstrated improvements in response speed and reliability compared to traditional cloud-only systems.

Automatic Temperature-Based Fan Controller using STM32F401 Microcontroller

- Developed a microcontroller-based embedded system that automatically adjusts fan speed based on ambient temperature.
- Integrated a temperature sensor with STM32F401 using ADC for real-time reading and signal processing.
- Programmed dynamic PWM control to regulate motor speed smoothly according to temperature variations.
- Designed a low-power circuit ensuring stable operation, safety, and efficiency in daily use.

Certifications

- DSA Certification – Coursera
- AWS Cloud Certification

Hobbies & Interests

- Playing cricket and volleyball
- Participating in hackathons and team coding events
- Learning new technologies and exploring emerging tech trends in free time