GANDEPALLI DHANUSH

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💼 PROFESSIONAL EXPERIENCE

Indian Institute of Technology
Teaching Assistant
07/2024 – Present | Bhilai

AP TRANSCO
Engineer Trainee
06/2020 – 12/2020 | Visakhapatnam

🏭 INTERNSHIP

Embedded System Intern
HMI Engineering Services
06/2023 – 07/2023 | Visakhapatnam
- Supported the integration of IoT devices with control systems for real-time monitoring and automation enhancement.
- Conducted hands-on experimentation with embedded microcontroller systems to automate electrical devices and improve system efficiency.

📇 PROFILE

A highly motivated Master's candidate in Control & Instrumentation Engineering at IIT Bhilai with a strong foundation in embedded systems, automation, and IoT. Combines practical project experience in developing solutions like IoT-based fault detection for solar panels with a passion for sustainable technology. GATE 2024 qualified, with proven teaching and collaboration skills gained as a Teaching Assistant. Eager to contribute to innovative projects in advanced control systems and automation.

🎓 EDUCATION

M.Tech   (Control & Instrumentation)   CGPA-7.94(1 st year)
Indian Institute of Technology Bhilai ⎋
07/2024 – Present | Bhilai, Chhattisgarh
- Skilled in Control Systems, Machine Learning, Image Processing, and Embedded Systems.
- Using deep learning to automatically find craters on the Moon and Mars from satellite images.
- Designing advanced control systems for industry using MATLAB and IoT.

B.Tech   (Electrical & Electronics Engineering)   CGPA-8.56
Wellfare Institute of Technology and Management
ANDHRA UNIVERSITY ⎋
08/2021 – 05/2024 | Visakhapatnam, AP
- Control systems basics focusing on feedback mechanisms, stability analysis, and controller design
- Design and implementation of embedded systems integrating microcontrollers for automation applications
- Development and testing of renewable energy systems such as solar and wind power generation

Diploma   (Electrical & Electronics Engineering)   78.68%
Government Polytechnic College Visakhapatnam ⎋
06/2018 – 05/2021 | Visakhapatnam, AP
- Basic principles and applications of semiconductor devices and electronic components for circuit design.
- Practical skills in wiring, installation, and maintenance of electrical systems and equipment.
- Introduction to digital electronics covering logic gates, Boolean algebra, and microprocessor basics.

📚 COURSES

Digital Image processing
IIT Bhilai
- Color image processing concepts and applications
- Digital image segmentation methods and edge detection algorithms

Computer Vision
IIT Bhilai
- Practical experience with OpenCV and TensorFlow for building computer vision applications

- Used computer vision to detect craters on planetary surfaces like moon and mars

📁 PROJECTS

Fault Detection of Solar Panels Using IOT
- **Objective:** To design and implement a system for rapid fault detection and localization in power systems (solar panels and power lines) to improve reliability and reduce downtime.
- **Methodology:** Utilized a non-destructive approach by integrating current sensors with a microcontroller to monitor real-time power output.
- **Key Feature:** An automated alert system that notifies users of faults via an IoT-connected mobile application, enabling immediate response and maintenance.

Voice Based HOME AUTOMATION using Bluetooth
- **Objective:** To design and build a system for controlling home appliances wirelessly using voice commands.
- **Core Technologies:** Arduino (Microcontroller), HC-05 Bluetooth Module, Relay Modules.
- **Functionality:** Established a wireless serial connection between a smartphone and the Arduino via the HC-05 module.
- Programmed the Arduino to interpret incoming commands and toggle power to connected lights.
- Integrated voice recognition on a mobile app to create a hands-free user interface.

Ripening State Detection of Fruits
- **Objective:** To build an automated system capable of classifying the ripeness level of fruit from images.
- **Core Algorithm:** Implemented a **Gaussian Mixture Model (GMM)** for unsupervised clustering of fruit features into distinct ripening stages.
- **Methodology:** Extracted dominant color and texture features from fruit images to serve as inputs for the model.
- **Model Training:** Trained the GMM to identify statistical patterns corresponding to 'unripe,' 'ripe,' and 'overripe' stages.
- **Classification:** Classified new images by determining which learned ripeness cluster their features most closely matched.

🔬 RESEARCH

Crater Detection on Planetary Surfaces
Using Computer Vision Techniques & Deep Learning Algorithms
- Applying advanced deep learning models (CNNs like U-Net & YOLO) to satellite imagery for the automated detection and analysis of craters on the Moon and Mars.
- This research supports planetary science and future mission planning , showcasing expertise in Machine Learning, Computer Vision, and large-scale data analysis.