Bandeppa gari Rakesh

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Software developer | Security researcher | Firmware engineer

Technical Skills

- **Programming Languages:** Java, Python, Go, C/C++, SQL, MongoDB, JavaScript, HTML/CSS
- **Frameworks & Libraries:** React, FastAPI, Django, Spring Boot, pandas, NumPy, Matplotlib, PyTorch
- **Cloud & Architecture:** AWS (Connect, Lex, Lambda, API Gateway), Microservices, Event-driven Architecture
- **Embedded Systems:** GPIO, ADC, SPI, UART, I2C, Timers, Watch dog, CAN, UDS and CAN-FD protocols
- **Additional Skills:** Git, Docker, CI/CD, GitHub Copilot, WebSockets, Multiprocessing, Multi-threading, ChatGPT, Penetration Testing

Professional Experience

Firmware Developer, Ather Energy, Bengaluru   Mar 2023 – Present

- Worked with GPIO, ADC, SPI, UART, I2C, Timers, Watch dog, CAN, UDS and CAN-FD on CYT2B7, S32k144 and C2000
- Designed and implemented smart features for Ather electric vehicles, including Auto Hold, Traction Control, Fall Detection, Theft/Tow Detection, and Other Ather Stack features enhancing vehicle safety and user experience
- Worked in the implementation of Smart ECO and vehicle features like indicators, tail lamps, and head lamps operation
- Developed an in-house PCAN-USB adapter for seamless CAN network connectivity, improving debugging efficiency across Linux, Windows, and macOS. ACAN Github
- Contributed to the Ather Software Development Kit (ASDK), enabling faster development and testing of vehicle software. ASDK Github
- Developed a HIL(Hardware-in-the-Loop) Setup, That will simulate Other Communication required for the DUT and verfiy the functions
- Worked with Program Team to setup Tech Experience center to show capabilities of Ather scooters to the investors for IPO

. **Backend Developer**, Ather Energy, Bengaluru   June 2022 – Feb. 2023

- Led the development of the Ather Diagnostic Tool, enabling intelligent communication between vehicles and systems to identify and resolve issues
- Implemented Role-Based Access Control (RBAC) using FastAPI, Spring Boot and MongoDB, ensuring secure access for users across India.
- Worked on Automation and Improvement of the Ather Factory flow in Dashboard Flashing, Registration, and Other flows.
- Optimized communication between vehicles and systems using WebSockets, Multiprocessing, and Multithreading, reducing latency and improving performance.
- Using Controller Area Network (CAN) and Unified Diagnostic Services (UDS) protocols to enhance diagnostic capabilities.

Software Developer(Intern), HashedIn by Deloitte, Bengaluru   January 2022 - June 2022

- Designed and developed a microservices-based call center application using AWS Connect and Spring Boot, improving customer service efficiency.
- Implemented AWS Lex chatbot for automated customer service, reducing manual intervention

- Leveraged AWS services (Lambda, API Gateway, DynamoDB) to build a scalable and reliable backend infrastructure.

Patents Filed

- **Multi Mode Traction control**
- **Method to detect Handle Lock Tampering**
- **Method to detect Cyclic Error in Measurement of Wheel Speed**
- **Vehicle CAN data Standarisation based on IoT & Telementry data requirements**
- **A novel Arrangement of a sensor Array and Associated method to determine the State of a two-wheeler ride**
- **Method to Detect Faulty Toner Ring**

Achievements & Recognitions

Hall of Fame| Tirupathi Tirumala Devasthanam   2021

- Discovered and reported critical vulnerabilities in the ticket booking system, including Response Manipulation and Insecure Direct Object Reference (IDOR), preventing potential account takeovers.

Hall of Fame| Mohan Babu University,   2020

- Identified and resolved SQL injection vulnerabilities in the college payment system, securing sensitive data, and preventing database breaches.
- Played a key role in the implementation of a secure payment system for the university, mitigating identified risks.

Notable Projects

NIVA — University Main Website   June 2020 - March 2021

- Collaborated on the development of the college's main website, focusing on back-end functionality.
- Implemented OAuth for seamless student login and integrated Celery and Redis for asynchronous task management.