Taksh Dhabalia

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Education

Maharashtra Institute of Technology - Pune — Pune, Maharashtra
BTech Computer Science *GPA: 7.5 - Till 5th Sem* — Aug 2022 - June 2026

BRPS - ICSE 10th - *91.7%* — Pune

Work Experience

IIIT-Delhi — Delhi
System Design and Embedded Software Developer Intern — Jan 2024 - Aug 2024
Key Skills - Cloud , Micro-controllers , Low level Design , System Architecture — GitHub

- Designed and implemented a water management system with an app and cloud integration.
- Developed the overall hardware and cloud architecture, deployed on STM32 micro controllers.
- Developed the entire app for the project written in Dart using the Flutter framework. Used Firebase for the backend .
- Demonstrated skills in micro-controller architecture , low-level embedded systems programming , system design and architecture, PCB designing and Flutter development.

Team Bolt — Pune
Vice Lead, Electronics — June 2023 - Jan 2024

- Secured All India Rank 4 in FMAE Moto Student India - Electric Super bike Building Competition and overall rank 2 in cost report and endurance test.
- Led the innovations and electronics department, developing 4 new innovations including GPS tracking and SOS impact sensors.
- Contributed to wiring and circuitry for GLVS and HVS systems.

Projects

Tarzan — *August - Current 2024*
Embedded Systems , Deep Learning, Sensors, Coding, Simulations — GitHub
Developing an autonomous vehicle portable module for non-ADAS enabled cars.
Uses an app to input images and run custom deep learning models [YOLOv8] to make decisions for car steering angle, acceleration, and braking values.
Takes surroundings like other cars , potholes , barricades etc. to make its decisions
Worked in making its simulations on MATLAB using pure-pursuit modelling .

IRIS Website — *August- September 2024*
Web Development- React, Payments, Databases, APIs — GitHub
Developed an official site for the club, handling multiple concurrent real-time payments and updating entries for events.
Utilized Razorpay, Supabase Database, and Vercel for deployment.

Real-Time Parking Management System — *March - May 2024*
OpenCV, Multi-Threading, MQTT, Embedded-Systems — GitHub
A system that takes in a live video feed and allocates parking based on parking availability .
Uses OpenCV and Threading with YOLOv8 for real-time allocation, speeding up the process by 40%.
Implemented using CCTV cameras and Raspberry Pi.

Doom on Web — *Jan - May 2024*
Python, Algorithms, Web APIs — GitHub
Achieved a 30% performance improvement in FPS and a 10% improvement on web platforms by implementing core algorithms natively. .
Leverages Ray-Casting for its core engine algorithm and uses BFS and DFS for its NPC algorithms
Developing multiplayer and squad-up features (WIP).

Music_Gen — *June - Dec 2023*
Music21, Python, TensorFlow — GitHub
Produced music from input using LSTMs in real time.
Utilized open-source KERN datasets for German songs to generate unique melodies based on the input provided, giving the continuations of them as a result .

Skills

Languages	Python, C, C++
Packages	Music21, OpenCV, Pandas, NumPy, TensorFlow, PyGame
Electronics	Raspberry Pi, STM32, Node-RED, ESP and Arduino Family
Software	MATLAB, SolidWorks, Blender
Communication Protocols	MQTT, LoRaWAN, ESP-Now, Cellular, NB-IoT

Soft Skills

- **Leadership**: Led team of 15 students in electric super bike competition for the innovations department and secured top rankings in FMAE Moto Student India.
  Currently eading a team of 40 students as President , doing various tasks involving guiding projects , research papers and non-technical events
- **Communication**: Effectively conveyed complex technical concepts to non-technical team members and stakeholders.
- **Problem-Solving**: Demonstrated ability to troubleshoot issues in embedded systems and optimize algorithms for real-time performance.
- **Team Collaboration**: Worked closely with cross-functional teams on various projects, including autonomous vehicles and the IRIS Website .
- **Time Management**: Managed multiple projects, competitions, and academic workload, consistently meeting deadlines and maintaining the standard.
- **Adaptability**: Quickly learned and integrated new technologies such as Flutter, Firebase, and STM32 in the short notice provided. Also pivoted from existing tech stack to newer approaches in my internship.

Awards

Ranked in Top 5 in Electric Super bike Racing Competition
FMAE (Federation of Mechanical and Automotive Engineers)

Positions of Responsibility

IRIS [Student Club, MIT-WPU] - President
Team Bolt [Student Club, MIT-WPU] - Vice-Lead for Innovations and Electronics