Full Stack Development Internship – Upskill Campus

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Executive Summary

This report provides details of the Industrial Internship provided by **Upskill Campus** in collaboration with **The IoT Academy** and Industrial Partner **UniConverge Technologies Pvt. Ltd (UCT)**.
This internship was based on a project/problem statement provided by UCT, and we were required to complete the project along with the internship report within a duration of **6 weeks**.

My project was **“Automotive Parts E-Commerce Website Using Full Stack Development.”** The project involved designing and developing a fully functional e-commerce platform similar to Amazon, including features such as product listing, search, cart, wishlist, checkout, and user authentication.

This internship gave me an excellent opportunity to gain exposure to industrial-level problem-solving, understand real-world workflow requirements, and design/implement a complete web-based solution. Overall, it was a great experience that enhanced my technical skills, practical knowledge, and confidence in developing real-time applications.

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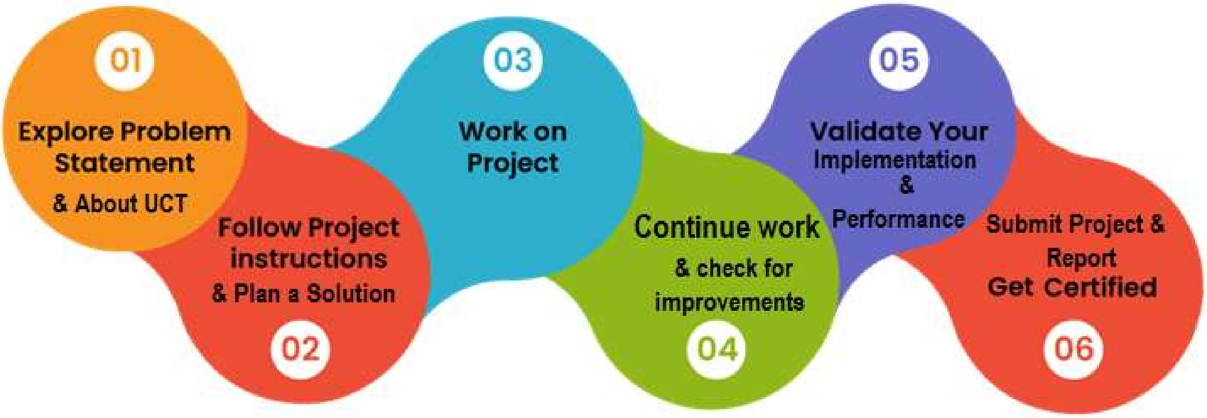
1 Preface

This report presents the work completed during my 6-week internship by **Upskill Campus** in collaboration with **UCT**. The internship helped me understand the need for practical experience in career development and allowed me to work on the project **“Automotive Parts E-Commerce Website Using Full Stack Development.”**.



The program was well-organized and gave me hands-on exposure to real industry tasks. I learned HTML, CSS, JavaScript, and improved my problem-solving skills. I thank USC, UCT, mentors, and all who supported me. My message to juniors: *focus on practical learning and always participate in internships*

2 Introduction

2.1 About UniConverge Technologies Pvt Ltd

A company established in 2013 and working in Digital Transformation domain and providing Industrial solutions with prime focus on sustainability and RoI.

For developing its products and solutions it is leveraging various **Cutting Edge Technologies e.g. Internet of Things (IoT), Cyber Security, Cloud computing (AWS, Azure), Machine Learning, Communication Technologies (4G/5G/LoRaWAN), Java Full Stack, Python, Front end** etc.

uct

Uniconverge Technologies

IIOT Products

We offer product ranging from Remote IOs, Wireless IOs, LoRaWAN Sensor Nodes/ Gateways, Signal converter and IoT gateways

IIOT Solutions

We offer solutions like OEE, Predictive Maintenance, LoRaWAN based Remote Monitoring, IoT Platform, Business Intelligence…

OEM Services

We offer solutions ranging from product design to final production we handle everything for you..

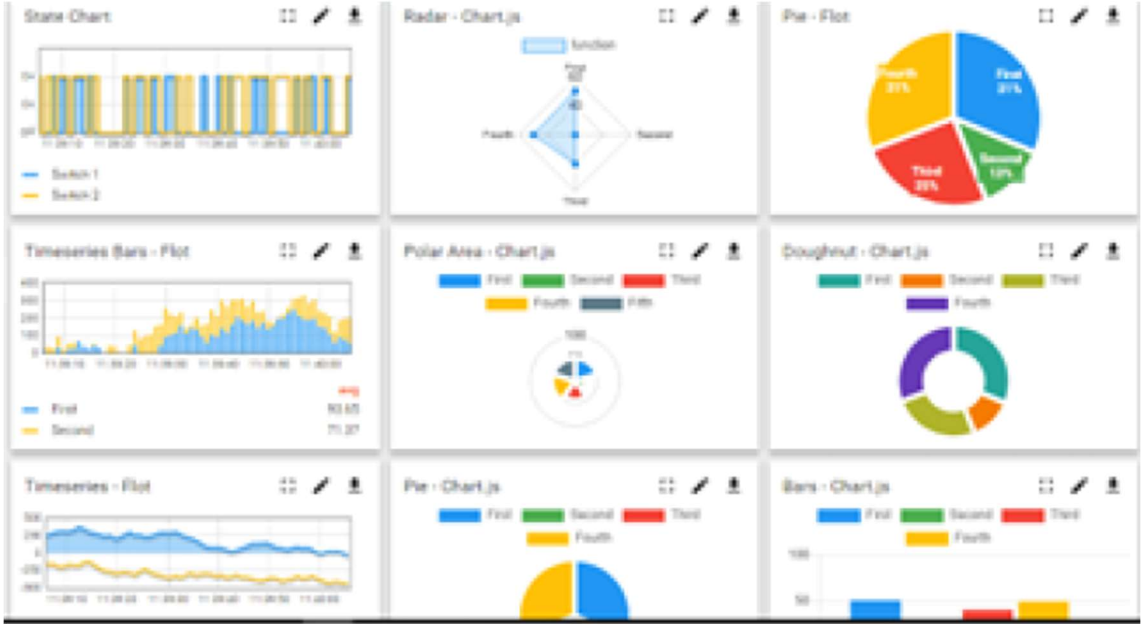
i. UCT IoT Platform (uct Insight)

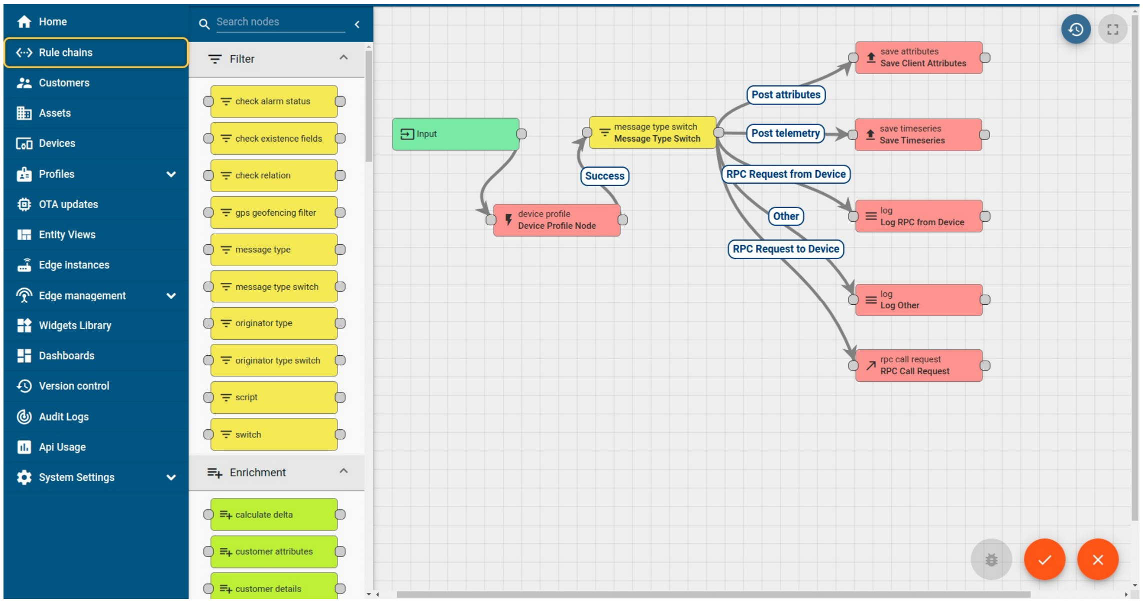
UCT Insight is an IOT platform designed for quick deployment of IOT applications on the same time providing valuable “insight” for your process/business. It has been built in Java for backend and ReactJS for Front end. It has support for MySQL and various NoSql Databases.

- It enables device connectivity via industry standard IoT protocols - MQTT, CoAP, HTTP, Modbus TCP, OPC UA
- It supports both cloud and on-premises deployments.

It has features to

- Build Your own dashboard
- Analytics and Reporting
- Alert and Notification
- Integration with third party application(Power BI, SAP, ERP)
- Rule Engine





FACTORY WATCH

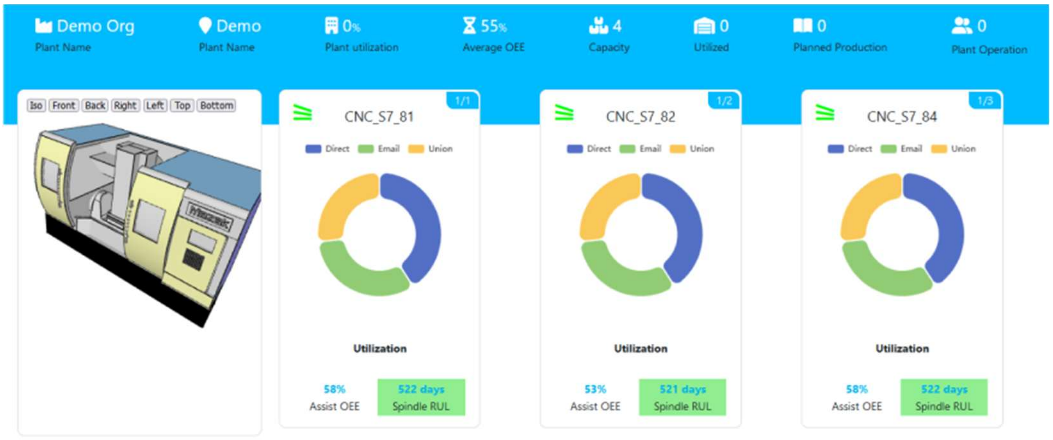
ii. Smart Factory Platform ()

Factory watch is a platform for smart factory needs.

It provides Users/ Factory

- with a scalable solution for their Production and asset monitoring
- OEE and predictive maintenance solution scaling up to digital twin for your assets.
- to unleased the true potential of the data that their machines are generating and helps to identify the KPIs and also improve them.
- A modular architecture that allows users to choose the service that they what to start and then can scale to more complex solutions as per their demands.

Its unique SaaS model helps users to save time, cost and money.



Demo Org
Plant Name

Demo
Plant Name

0%
Plant utilization

55%
Average OEE

4
Capacity

0
Utilized

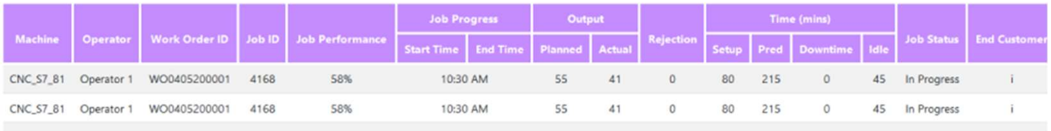
0
Planned Production

0
Plant Operation

CNC_S7_81 — 1/1
Utilization
58% Assist OEE
522 days Spindle RUL

CNC_S7_82 — 1/2
Utilization
53% Assist OEE
521 days Spindle RUL

CNC_S7_84 — 1/3
Utilization
58% Assist OEE
522 days Spindle RUL



Machine	Operator	Work Order ID	Job ID	Job Performance	Job Progress		Output		Rejection	Time (mins)				Job Status	End Customer
					Start Time	End Time	Planned	Actual		Setup	Pred	Downtime	Idle		
CNC_S7_81	Operator 1	WO0405200001	4168	58%	10:30 AM		55	41	0	80	215	0	45	In Progress	i
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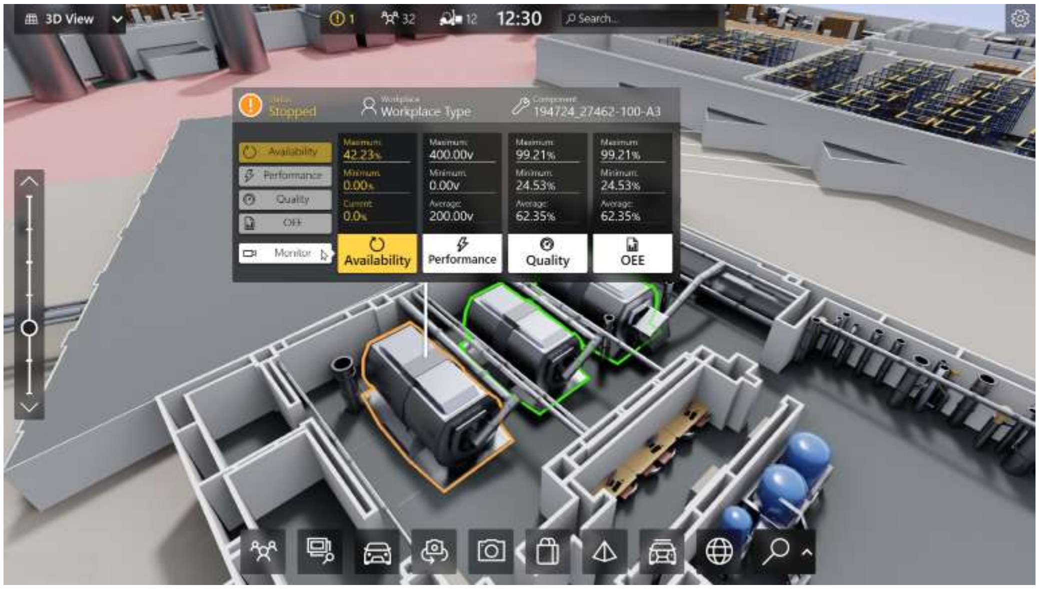


Status: Stopped
Workplace: Workplace Type
Component: 194724_27462-100-A3

Availability — Maximum: 42.23% Minimum: 0.00% Current: 0.0%
Performance — Maximum: 400.00v Minimum: 0.00v Average: 200.00v
Quality — Maximum: 99.21% Minimum: 24.53% Average: 62.35%
OEE — Maximum: 99.21% Minimum: 24.53% Average: 62.35%

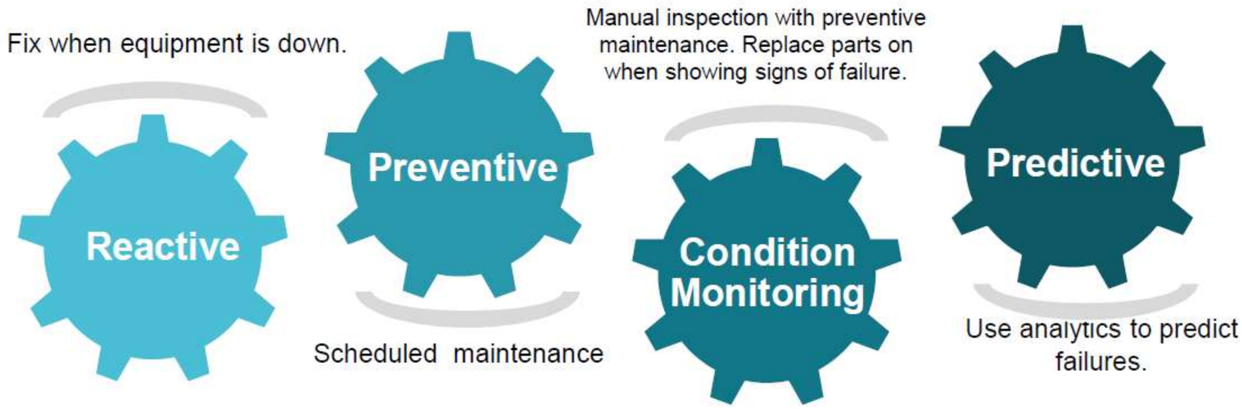
LoRaWAN™

iii. based Solution

UCT is one of the early adopters of LoRAWAN teschnology and providing solution in Agritech, Smart cities, Industrial Monitoring, Smart Street Light, Smart Water/ Gas/ Electricity metering solutions etc.

iv. Predictive Maintenance

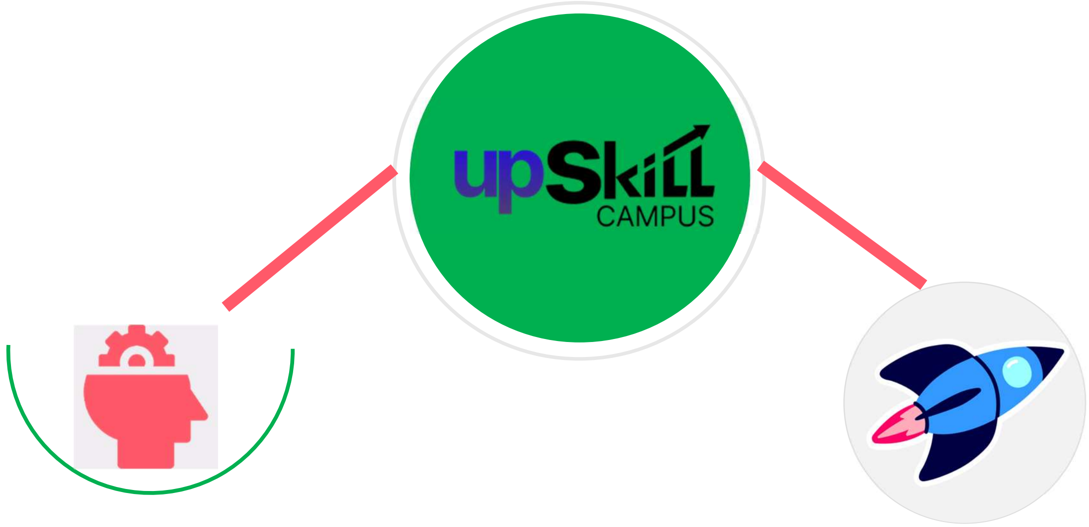
UCT is providing Industrial Machine health monitoring and Predictive maintenance solution leveraging Embedded system, Industrial IoT and Machine Learning Technologies by finding Remaining useful life time of various Machines used in production process.


Fix when equipment is down.
Reactive
Preventive
Scheduled maintenance
Manual inspection with preventive maintenance. Replace parts on when showing signs of failure.
Condition Monitoring
Predictive
Use analytics to predict failures.

2.2 About upskill Campus (USC)

upskill Campus along with The IoT Academy and in association with Uniconverge technologies has facilitated the smooth execution of the complete internship process.

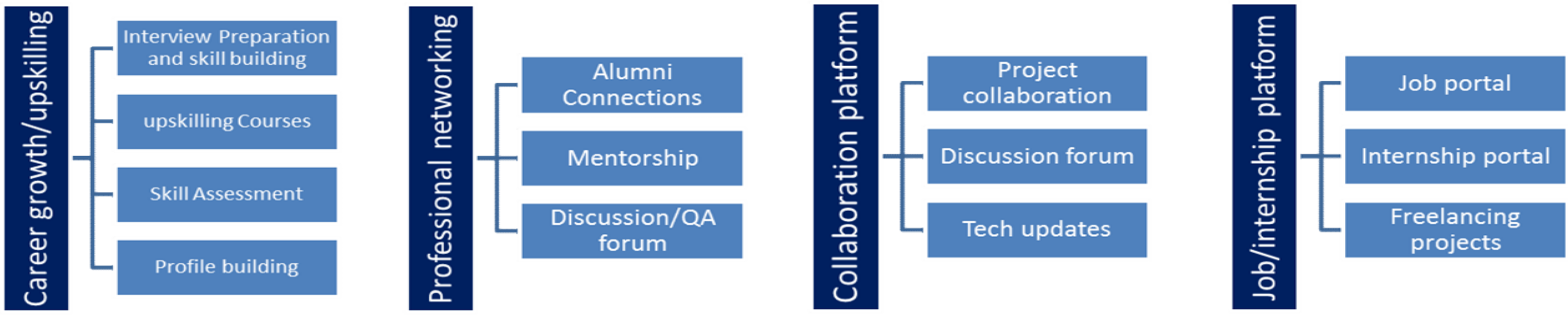
USC is a career development platform that delivers **personalized executive coaching** in a more affordable, scalable and measurable way.



Seeing need of upskilling in self paced manner along-with additional support services e.g. Internship, projects, interaction with Industry experts, Career growth Services

upSkill Campus aiming to upskill 1 million learners in next 5 year

https://www.upskillcampus.com/



Career growth/upskilling
- Interview Preparation and skill building
- upskilling Courses
- Skill Assessment
- Profile building

Professional networking
- Alumni Connections
- Mentorship
- Discussion/QA forum

Collaboration platform
- Project collaboration
- Discussion forum
- Tech updates

Job/internship platform
- Job portal
- Internship portal
- Freelancing projects

2.3 The IoT Academy

The IoT academy is EdTech Division of UCT that is running long executive certification programs in collaboration with EICT Academy, IITK, IITR and IITG in multiple domains.

2.4 Objectives of this Internship program

The objective for this internship program was to

☛ get practical experience of working in the industry.

☛ to solve real world problems.

☛ to have improved job prospects.

☛ to have Improved understanding of our field and its applications.

☛ to have Personal growth like better communication and problem solving.

2.5 Reference

[1] Upskill Campus – Full Stack Development Internship Modules
[2] MDN Web Docs – HTML, CSS, and JavaScript Documentation
[3] W3Schools – Web Technology Tutorials
[4] JavaScript LocalStorage Documentation
[5] Sample E-commerce UI References (Amazon, Flipkart)

2.6 Glossary

Terms	Acronym
HTML	Structure of the webpage
CSS	Styling and layout of pages
JavaScript	Adds interactivity and functions
UI/UX	User interface and user experience
Frontend	Client-side website development

3 Problem Statement

In the assigned problem statement, I was required to design and develop a functional **Automotive Parts E-Commerce Website** using full stack development concepts. The main challenge was to create an online platform similar to Amazon where users can browse automotive parts, view product details, search items, add products to a cart or wishlist, create/login to their accounts, and complete a basic checkout process.

The website needed to be fully responsive, user-friendly, visually appealing, and efficient in handling product interactions using frontend technologies. Since the project was to be completed without backend databases, all data storage and user authentication had to be handled using **JavaScript and LocalStorage**.

The problem statement focused on creating a realistic e-commerce experience while working within the constraints of frontend-only implementation, ensuring smooth navigation, accurate data handling, and a complete user flow from product selection to order placement.

4 Existing and Proposed solution

- **4.1 Existing Solutions and Their Limitations**

There are many existing e-commerce platforms such as **Amazon, Flipkart, AutoZone, CarParts.com**, and other automotive parts websites. These platforms provide powerful features like advanced search filters, huge product databases, and fast delivery services.

However, these solutions have certain limitations:

- They are **complex**, requiring large backend systems and databases.
- They are **costly** to develop, deploy, and maintain.
- Many platforms do not clearly show **vehicle compatibility** for each part.
- Their source code is **not openly available**, making it difficult for learners or small developers to understand how they work internally.
- They require **server-side integration**, which is not suitable for beginners or small academic projects.

- **4.2 Proposed Solution**

My proposed solution is to create a **simple, lightweight, and user-friendly automotive parts e-commerce website** using only:

- **HTML** for structure
- **CSS** for UI and styling
- **JavaScript** for functionality
- **LocalStorage** for temporary data storage (cart, login, orders)

The website will include all essential e-commerce features such as:

- Homepage with categories
- Search and product listing
- Product detail pages

- Add to cart and wishlist
- Checkout and order placement
- Login and signup system

This proposed solution focuses on **simplicity**, **learning**, and **practical implementation** without using a backend server.

- **4.3 Value Addition**

The value additions planned in my project include:

- A clean, **Amazon-style user interface**
- User-friendly navigation and responsive design
- Vehicle compatibility-based product display
- LocalStorage-based authentication and order history
- Fast performance due to no server dependency
- Easy-to-understand code suitable for academic learning
- A complete end-to-end e-commerce workflow built only using frontend technologies

4.1 Code submission (Github link) : https://github.com/Roshanhatkar/upskillcampus

4.2 Report submission (Github link) : first make placeholder, copy the link.

5 Proposed Design/ Model

The proposed design of the Automotive Parts E-Commerce Website follows a simple and structured flow to ensure smooth user interaction and a complete shopping experience. The system begins at the **Homepage**, where users can browse categories, search products, and view recommendations.

From there, users move to the **Product Interaction Stage**, where they can view product details, check compatibility, and add items to the cart or wishlist. All data such as cart items and wishlist selections are stored using **LocalStorage** to maintain consistency across pages.

The next stage is **User Authentication**, where users can log in or sign up before placing an order. Once authenticated, the user proceeds to the **Checkout Stage**, where they enter shipping details and confirm the order.

Finally, the **Order Placement Stage** stores the order information in LocalStorage and displays it in the "My Orders" section, completing the e-commerce workflow.

This design ensures a smooth start-to-end process with easy navigation, responsive pages, and essential e-commerce features implemented using front-end technologies only.

6 Performance Test

To ensure this project meets basic industry expectations, key performance constraints such as loading speed, memory usage, responsiveness, and data accuracy were evaluated. Lightweight CSS, optimized images, and efficient JavaScript functions were used to handle these constraints.

6.1 Test Plan/ Test Cases

Major functions like login/signup, add to cart, remove from cart, search, and checkout were tested. All test cases performed successfully, and data handling through LocalStorage worked accurately.

6.2 Test Procedure

The website was manually tested by navigating through pages, performing cart operations, placing orders, and checking responsiveness on different screen sizes.

6.3 Performance Outcome

The website loaded quickly, responded smoothly, and showed no errors during testing. LocalStorage-based operations were fast and reliable, making the system effective for a front-end-only project.

7 My learnings

During this internship, I gained strong practical knowledge in full stack development fundamentals. I learned how to build a complete website from scratch using HTML, CSS, and JavaScript. My understanding of webpage structure, responsive layout design, DOM manipulation, user authentication, and LocalStorage improved significantly.

I also learned how real projects are planned, broken into tasks, and tested before deployment. This internship increased my confidence, improved my problem-solving skills, and strengthened my foundation for future roles in software development. These learnings will play an important role in my career growth, especially as I aim to become a full stack or frontend developer

8 Future work scope

Due to time limitations, several features could not be implemented but can be added in the future:

- Integration of backend using **Node.js / PHP**
- Database support using **MongoDB or MySQL**
- Real payment gateway integration (Razorpay/Stripe)
- Admin dashboard for product and order management
- User reviews and ratings system
- Vehicle compatibility filter system
- Chatbot or customer support system
- Deployment as a full-stack web application

These enhancements will make the project more scalable, professional, and industry-ready.