Industrial Internship Report on

”BANKING INFORMATION SYSTEM”

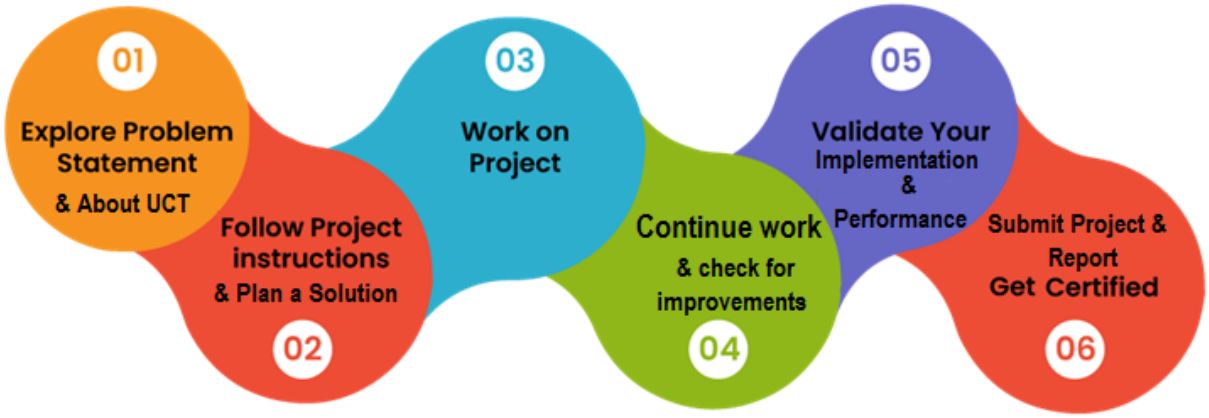
Prepared by

KANAK BAGHEL

Executive Summary
This report provides a comprehensive overview of the industrial internship facilitated by Upskill Campus and The IoT Academy in collaboration with UniConverge Technologies Pvt. Ltd. (UCT). Over the course of 6 weeks, I worked on a real-world simulation project titled “Multi-Client Service Platform”, developed using Java and Object-Oriented Programming principles. The project centered around building a terminal-based application that models a scalable, merchant-customer service ecosystem. It includes user role management, appointment scheduling, category-wise service filtering, a secure authentication system, email-like notifications, and a simulated payment experience—all within a CLI (Command-Line Interface). This experience gave me meaningful insight into how digital marketplaces function behind the scenes, and how one can transform business logic into modular, maintainable code.

TABLE OF CONTENTS

1 Preface



In a rapidly digitizing world, industries demand not just theoretical proficiency but hands-on technical capability. This internship provided the perfect bridge between classroom knowledge and practical software development. My project challenged me to think like a product developer and simulate a real-world multi-vendor marketplace, much like UrbanClap or Zomato, but from scratch and in Java.

I designed the system to include secure authentication, filtered service browsing, mock payment handling, and email simulation via console output—offering a complete flow from merchant onboarding to customer ordering. It was a well-structured program that accelerated my growth as a developer and deepened my appreciation for architectural design and modular development.

This report is a reflection of my journey from understanding the problem space to delivering a polished, testable product.

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.

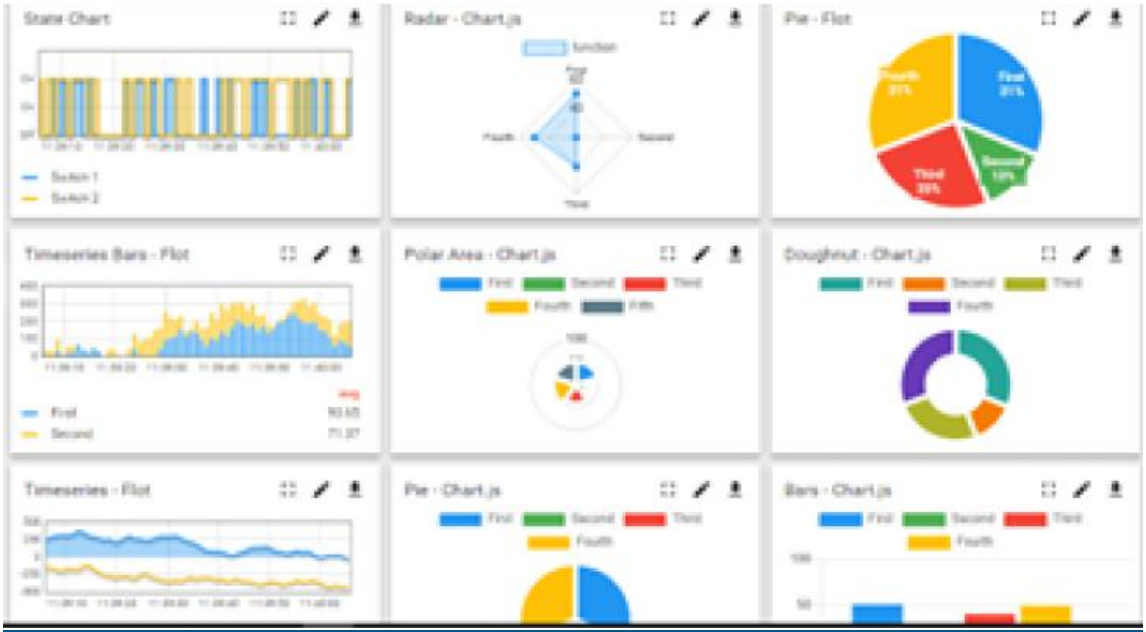
i. UCT IoT Platform (UCT Insight)

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



ii. Smart Factory Platform (FACTORY WATCH)

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.

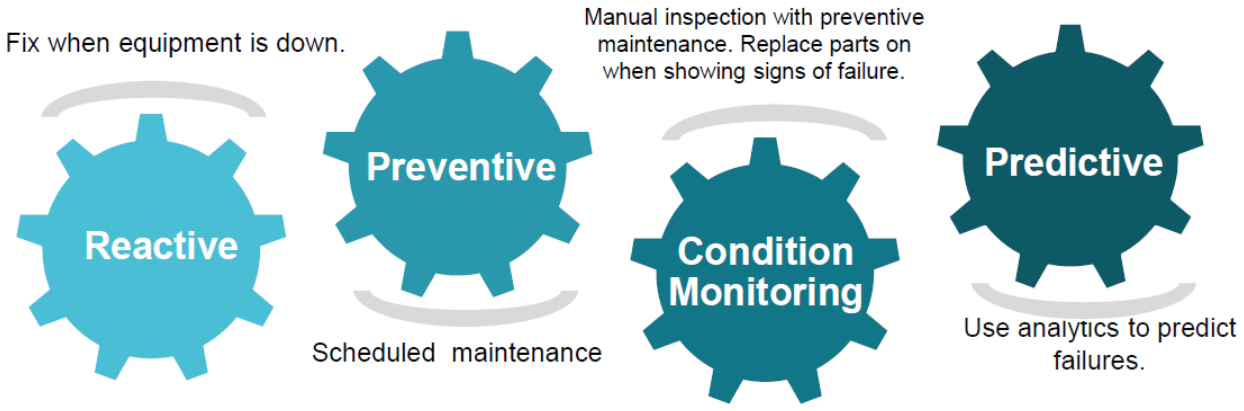
Machine	Operator	Work Order ID	Job ID	Job Performance	Job Progress		Output		Rejection	Time (mins)				Job Status	End Customer
					Start Time	End Time	Planned	Actual		Setup	Pred	Downtime	Idle		
CNC_S7_81	Operator 1	WO0405200001	4168	58%	10:30 AM		55	41	0	80	215	0	45	In Progress	i
CNC_S7_81	Operator 1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

iii. LoRaWAN 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

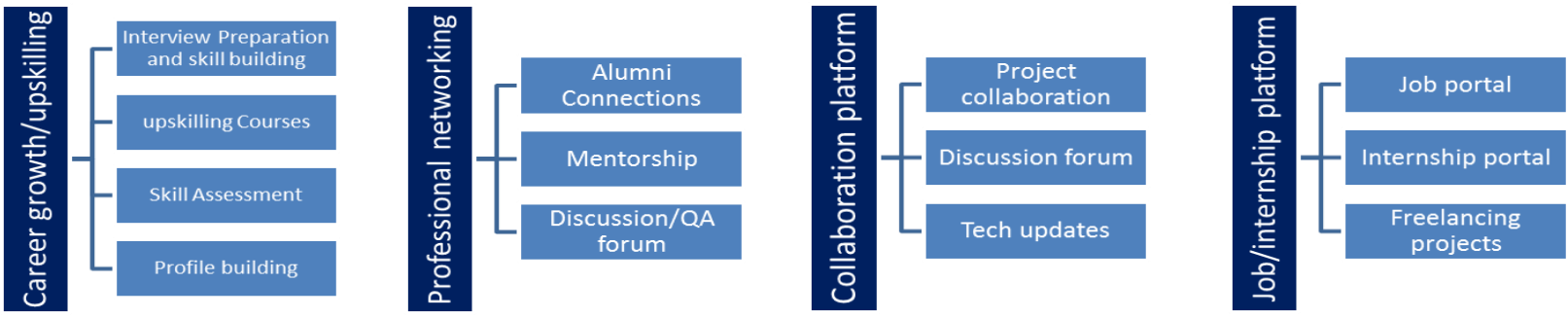
UCT is providing Industrial Machine health monitoring and Predictive maintenance solution leveraging Embedded system, Industrial IoT and Machine Learning Technologies by finding Remaining useful life time of various Machines used in production process.



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.



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] Visual Studio Code

[2] Github

[3] Java 17

[4] Upskill Campus

2.6 Glossary

Terms	Acronym
OOP	Object- Oriented Programming
IDE	Integrated Development Environment
GUI	Graphical User Interface
CLI	Command Line Interface
VS	Visual Studio

3 Problem Statement

In the assigned problem statement

To simulate a fully functional multi-client marketplace where:

- Merchants can register, add services under categories (e.g., beauty, home, pets), and manage orders.
- Customers can register, browse services by category, schedule appointments, and place orders.
- The system must simulate a secure login mechanism, a mock checkout/payment system, email confirmations, and dashboards for both user types.

The objective was to emulate a highly scalable, modular, and intuitive solution using Java, without GUI or database support—focusing solely on backend workflows

4 Existing and Proposed solution

Existing Systems

While platforms like UrbanCompany, Sulekha, and Justdial offer these services via web and mobile apps, their architecture is often hidden. Academic projects tend to simplify functionality or only focus on frontend UI without full-flow logic.

Proposed Solution

- Java-based CLI simulation of a live service platform
- Supports two user roles: Merchant & Customer
- Category-based browsing, appointment booking, mock payment
- Order management dashboard per user
- Simulated email notifications using console messages
- Clean OOP structure with reusable components

4.1 Code/Report submission (Github link)

https://github.com/Kanakbaghel/upskillcampus

5 Proposed Design/ Model

Given more details about design flow of your solution. This is applicable for all domains. DS/ML Students can cover it after they have their algorithm implementation. There is always a start, intermediate stages and then final outcome.

User Classes:

- `Merchant` and `Customer` extend `User`
- Login + Password authentication
- Service catalog with price and category

Key Features:

- Add & browse services under categories
- Place orders using appointment date input
- Auto-generate email-like confirmations for both parties
- Maintain individual order history logs
- Error handling for invalid login/service/date scenarios

System Structure:

- `User (Abstract Class)` → Extended by `Customer` and `Merchant`
- `Platform` → Main controller handling logins, orders, service registration
- `Service` → Encapsulates service name, category, price
- `Order` → Stores transactional data with appointment date
- `Authentication` → Handled using email-password matchin

6 Performance Test

This is very important part and defines why this work is meant of Real industries, instead of being just academic project.

Here we need to first find the constraints.

□ Test Scenarios

Case	Description	Status
Merchant login & add service	Success	□
Customer login & browse/book service	Success	□
Service filtering by category	Validated	□
Simulated payments & email alerts	Verified	□
Order dashboards	Correct display	□
Edge cases (invalid inputs)	Handled gracefully	□

Constraints & Design Response

- No persistent storage → Session-only data
- Memory-efficient array list handling
- Manual data seeding for testing
- Modular structure helps in potential GUI or DB integrations later

7 My learnings

This internship helped me:

- Strengthen practical Java coding and OOP skills
- Simulate real application workflows in a structured manner
- Think modularly and separate concerns within an app
- Get hands-on debugging and edge case handling experience
- Improve my communication by documenting and presenting tech solutions
- Build confidence in showcasing work via platforms like GitHub.

8 Future work scope

There's strong potential to enhance this application:

- Implement persistent storage using file I/O or JDBC
- Add real authentication with encryption for passwords
- Create a GUI with JavaFX or Swing
- Send actual email confirmations via SMTP in Java
- Include a role-based admin module
- Deploy a web version using Spring Boot (Java backend + HTML frontend)

9. Acknowledgments

I express heartfelt gratitude to the mentors at Upskill Campus and UniConverge Technologies Pvt. Ltd., who provided valuable insights and consistent encouragement. I'm thankful to my peers for their collaborative spirit and feedback, and to my academic guides for nurturing my curiosity.

To my fellow learners: explore ideas courageously, embrace the power of problem-solving, and never underestimate the value of self-driven learning.