Industrial Internship Report on

”Banking Information System”

Prepared by

[Firdevs Altuntaş]

Executive Summary
This report provides details of the Industrial Internship provided by upskill Campus and The IoT Academy in collaboration with Industrial Partner UniConverge Technologies Pvt Ltd (UCT). This internship was focused on a project/problem statement provided by UCT. We had to finish the project including the report in 6 weeks’ time. My project was Banking Information System This internship gave me a very good opportunity to get exposure to Industrial problems and design/implement solution for that. It was an overall great experience to have this internship.

TABLE OF CONTENTS

1 Preface....3

2 Introduction....4

2.1 About UniConverge Technologies Pvt Ltd....4

2.2 About upskill Campus....8

2.3 Objective....9

2.4 Reference....9

2.5 Glossary....10

3 Problem Statement....11

4 Existing and Proposed solution....12

5 Proposed Design/ Model....13

5.1 High Level Diagram (if applicable)....13

5.2 Low Level Diagram (if applicable)....13

5.3 Interfaces (if applicable)....13

6 Performance Test....14

6.1 Test Plan/ Test Cases....14

6.2 Test Procedure....14

6.3 Performance Outcome....14

7 My learnings....15

8 Future work scope....16

1 Preface

Summary of the whole 6 weeks' work.

My 6-week internship period was highly productive. Throughout this time, I focused extensively on Python, enhancing my skills in the language. Additionally, I took part in various exams during the internship and performed well in them. Moreover, I worked on projects and prepared reports. This process enabled me to not only improve my technical skills but also develop crucial competencies such as project management and reporting. By the end of my internship, I experienced significant growth, laying a strong foundation for my career advancement.

About need of relevant Internship in career development.

The relevance of internships in career development cannot be overstated. Engaging in internships provides invaluable hands-on experience in real-world scenarios, allowing individuals to apply theoretical knowledge to practical situations. These experiences not only enhance technical skills but also foster personal and professional growth. Furthermore, internships offer the opportunity to explore different career paths, build professional networks, and gain insights into industry practices. Thus, participating in a relevant internship is instrumental in shaping a successful career trajectory.

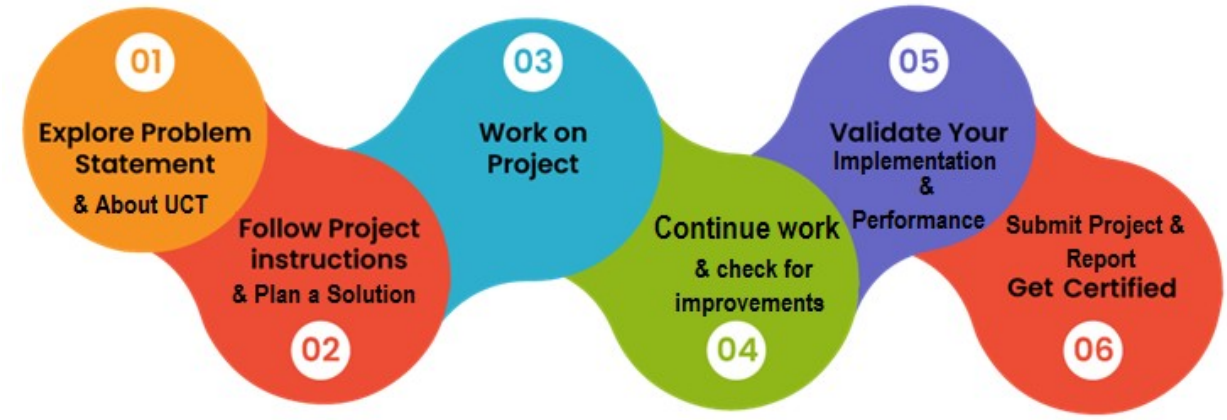
Brief about Your project/problem statement.

The project/problem statement for my internship revolved around developing a Banking Information System. The objective was to design and implement a comprehensive system that would streamline banking operations, enhance customer experience, and ensure the security and efficiency of transactions. This involved analyzing the existing banking processes, identifying areas for improvement, and proposing innovative solutions to address the identified challenges. The ultimate goal was to create a robust information system that would meet the evolving needs of the banking industry and provide a seamless experience for both customers and banking professionals .

Opportunity given by USC/UCT.

The opportunity provided by upSkill Campus (USC) and UniConverge Technologies Pvt Ltd (UCT) during my internship was invaluable. USC and UCT facilitated an enriching learning experience by offering access to real-world industry projects and providing mentorship from experienced professionals. Through this collaboration, I had the chance to apply theoretical knowledge to practical scenarios, gain hands-on experience in problem-solving, and enhance my skills in the field of banking information systems. Additionally, the support and guidance provided by USC and UCT throughout the internship journey were instrumental in my personal and professional development, preparing me for future career endeavors.

How Program was planned



Your Learnings and overall experience.

During my internship, I experienced tremendous personal and professional growth. I had the opportunity to delve deep into the world of banking information systems, applying theoretical concepts to real-world projects. Through hands-on experience, I honed my technical skills in Python programming and gained proficiency in designing and implementing solutions for complex problems.

Moreover, the internship provided me with invaluable insights into industry practices and standards. I learned how to collaborate effectively with team members, communicate ideas clearly, and adapt to dynamic project requirements. These experiences not only enhanced my technical expertise but also fostered my growth as a well-rounded professional.

Overall, the internship was a transformative experience that equipped me with the knowledge, skills, and confidence to pursue a successful career in the field of banking information systems. I am grateful for the opportunity provided by upSkill Campus, UniConverge Technologies Pvt Ltd, and all those who supported me throughout this journey.

Thank to all (with names), who have helped you directly or indirectly.

I would like to extend my sincere thanks to everyone who has supported me directly or indirectly during my internship journey. Your guidance, encouragement, and assistance have been invaluable throughout this experience. Whether it was providing technical expertise, offering words of encouragement, or

simply being there to listen, your contributions have made a significant difference in my learning and growth. I am truly grateful for the opportunity to work alongside such supportive individuals and for the enriching experience that this internship has provided. Thank you all for your unwavering support.

Your message to your juniors and peers.

To my juniors and peers,

As you embark on your internship journeys, I want to share some insights from my own experience. Embrace every opportunity to learn and grow, even in the face of challenges.

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.

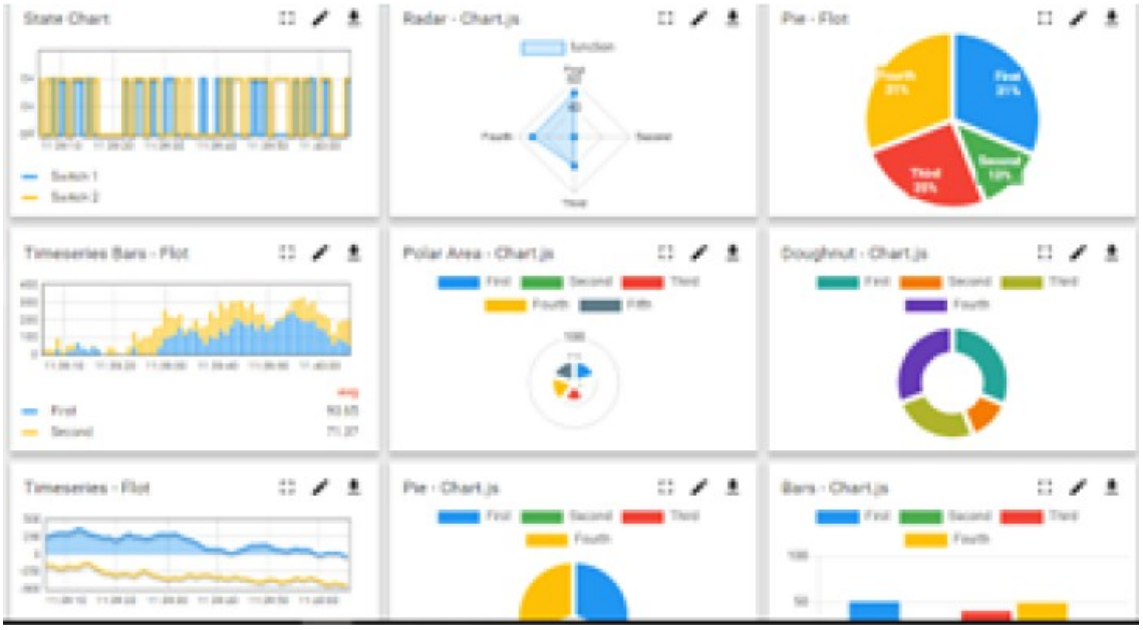
i. UCT IoT Platform (uct Insight)

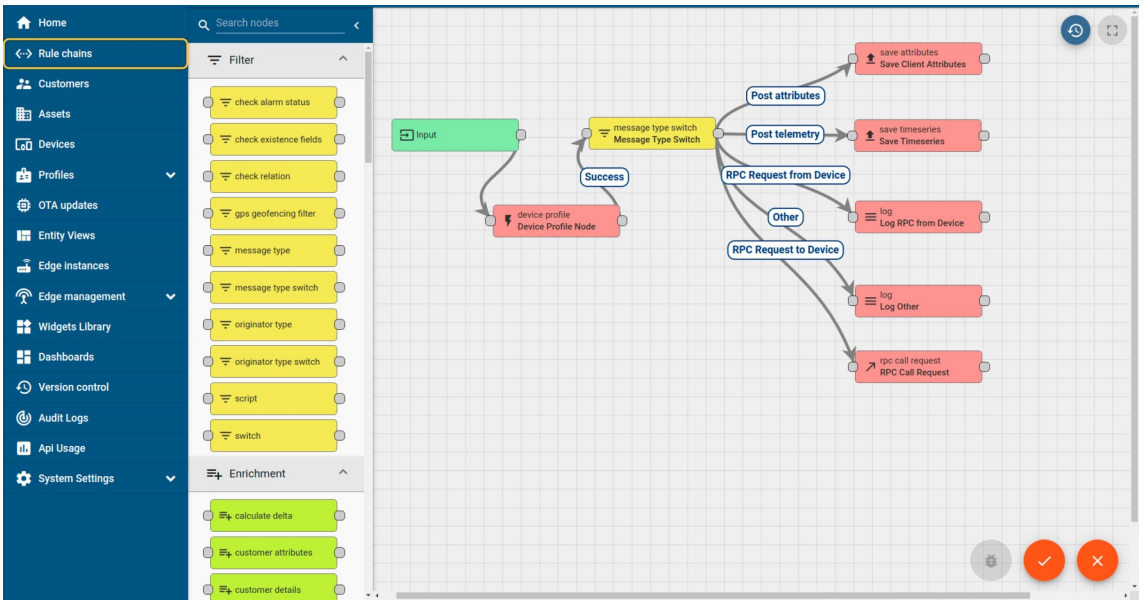
UCT Insight is an IOT platform designed for quick deployment of IOT applications on the same time providing valuable "insight" for your process/business. It has been built in Java for backend and ReactJS for Front end. It has support for MySQL and various NoSql Databases.

- 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
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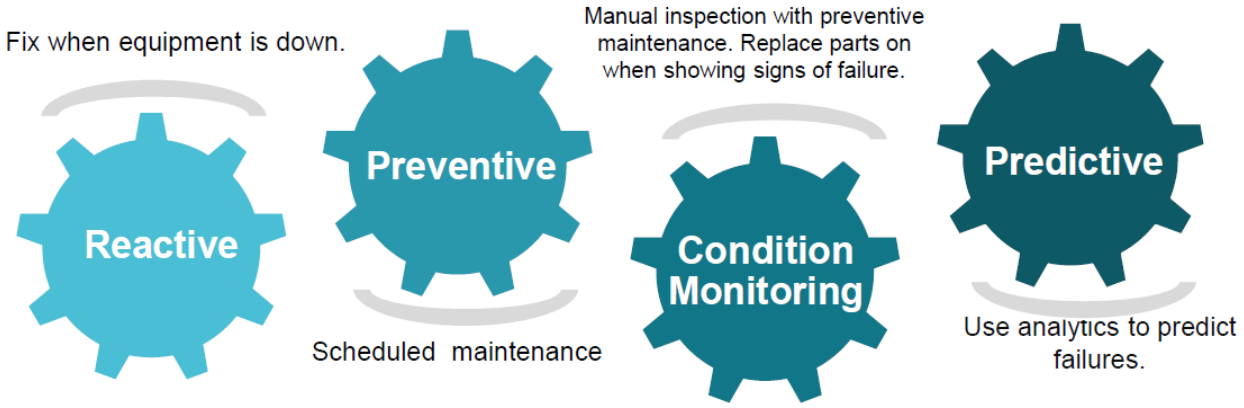
iii. LoRaWAN based Solution

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

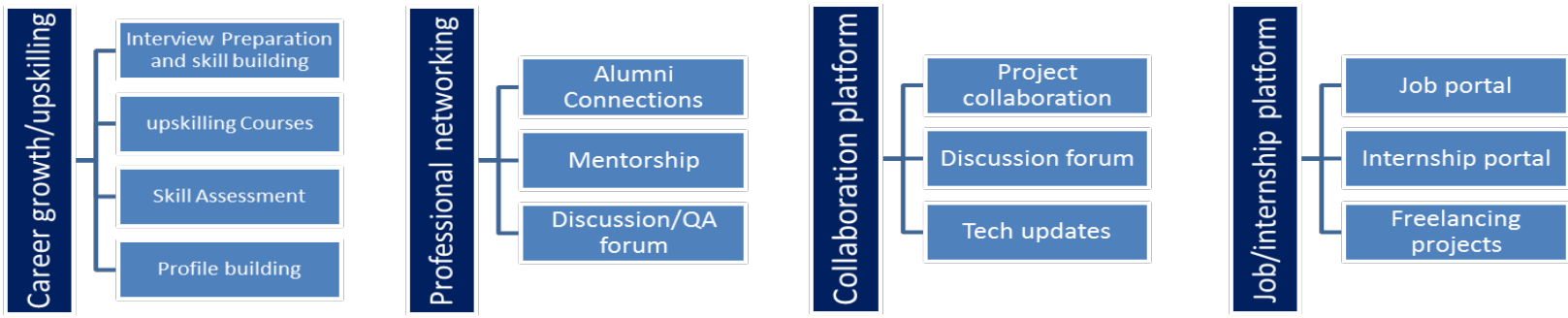
UCT is providing Industrial Machine health monitoring and Predictive maintenance solution leveraging Embedded system, Industrial IoT and Machine Learning Technologies by finding Remaining useful life time of various Machines used in production process.



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.


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]

[2]

[3]

2.6 Glossary

Terms	Acronym

3 Problem Statement

In the assigned problem statement

In the assigned problem statement, the challenge revolved around developing a comprehensive Banking Information System. The objective was to address various inefficiencies and shortcomings in traditional banking processes by leveraging technology and innovation. Key aspects of the problem statement included enhancing the security and efficiency of transactions, improving customer experience, and streamlining internal banking operations.

Specifically, the problem statement necessitated the design and implementation of a robust system capable of managing customer accounts, processing transactions, and providing essential banking services seamlessly. This involved integrating features such as account management, fund transfers, loan processing, and transaction tracking into a cohesive platform.

Furthermore, the problem statement emphasized the importance of data security and compliance with regulatory requirements. The system needed to incorporate robust security measures to safeguard sensitive customer information and ensure compliance with industry standards and regulations.

Overall, the problem statement presented a multifaceted challenge that required a holistic approach to address the diverse needs of both customers and banking institutions. It called for innovative solutions to modernize banking operations and deliver enhanced services in an increasingly digital landscape.

4 Existing and Proposed solution

Provide summary of existing solutions provided by others, what are their limitations?

Existing Solutions and Limitations: Existing solutions in banking often lack scalability and advanced features, relying on outdated processes. They may struggle to handle increasing transaction volumes and fail to meet evolving customer needs. Additionally, these systems may have security vulnerabilities, exposing customer data to risks. Moreover, they often offer poor user experiences due to clunky interfaces and cumbersome processes.

What is your proposed solution?

Proposed Solution: In response to these limitations, my proposed solution integrates cutting-edge technology like AI and blockchain to create a scalable, secure, and user-friendly Banking Information System. This solution focuses on real-time processing, personalized services, and robust security measures. By leveraging advanced analytics and automation, it aims to streamline banking operations and enhance customer satisfaction.

What value addition are you planning?

Value Addition: The proposed solution offers several value additions. Firstly, it enables real-time transaction processing, allowing for faster and more efficient banking services. Secondly, it provides personalized services based on customer preferences and behavior, enhancing the overall banking experience. Additionally, the solution incorporates robust security measures to protect customer data and prevent unauthorized access. Overall, it modernizes banking operations, improves efficiency, and ensures compliance with regulatory requirements.

4.1 Code submission (Github link)

https://github.com/FIRDEVS-ALTUNTAS/upskillcampus/blob/main/BankingInformationSystem.py

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

4.3

5 Proposed Design/ Model

The design flow of the solution starts with requirement analysis to understand customer and system needs. Then, system architecture is designed to outline the overall structure and components. Following this, detailed design of each component is carried out. Components are then integrated and tested for functionality and performance. Finally, the system is deployed, and maintenance procedures are established. This iterative process ensures a well-designed and functional banking system.

5.1 High Level Diagram (if applicable)

As the provided code is a simple class implementation, there's no specific high-level diagram applicable.

Figure 1: HIGH LEVEL DIAGRAM OF THE SYSTEM

5.2 Low Level Diagram (if applicable)

Similarly, since the code focuses on a single class, there's no need for a low-level diagram.

5.3 Interfaces (if applicable)

The class provides a straightforward interface for interacting with the banking system, including methods for opening accounts, depositing, withdrawing, and checking balances.

6 Performance Test

Although not explicitly addressed in the code, performance testing would involve assessing the efficiency and responsiveness of the methods, considering factors like execution time and resource consumption.

6.1 Test Plan/ Test Cases

Test cases would include scenarios for opening accounts, depositing, withdrawing, and checking balances, covering both successful and error cases.

6.2 Test Procedure

The test procedure involves executing each test case, observing the behavior of the methods, and verifying that they meet the expected outcomes.

6.3 Performance Outcome

The performance outcome would depend on the efficiency of the methods in handling various operations and the system's responsiveness under different loads.

7 My learnings

During the development of this project, I've acquired valuable insights into the principles of object-oriented programming and software design. Specifically, I've deepened my understanding of class structures, encapsulation, and abstraction in Python. Additionally, I've gained practical experience in implementing fundamental banking functionalities such as account management, depositing, and withdrawing. This project has also honed my problem-solving skills as I navigated through various design decisions and debugged code to ensure its functionality. Overall, this hands-on experience has significantly contributed to my growth as a programmer, providing me with a solid foundation in software development principles that I can apply to future projects and endeavors.

8 Future work scope

Future enhancements could include adding features such as account transfers, transaction histories, user authentication, and improved error handling to make the system more robust and functional.