Industrial Internship Report on

”Banking Information System”

Prepared by

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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 a Banking Information System developed using Python. The objective of this project was to design and implement a simple console-based application that performs basic banking operations such as account creation, deposit, withdrawal, and balance enquiry. This project helped me understand the practical application of Python programming concepts in solving real-world problems.

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.

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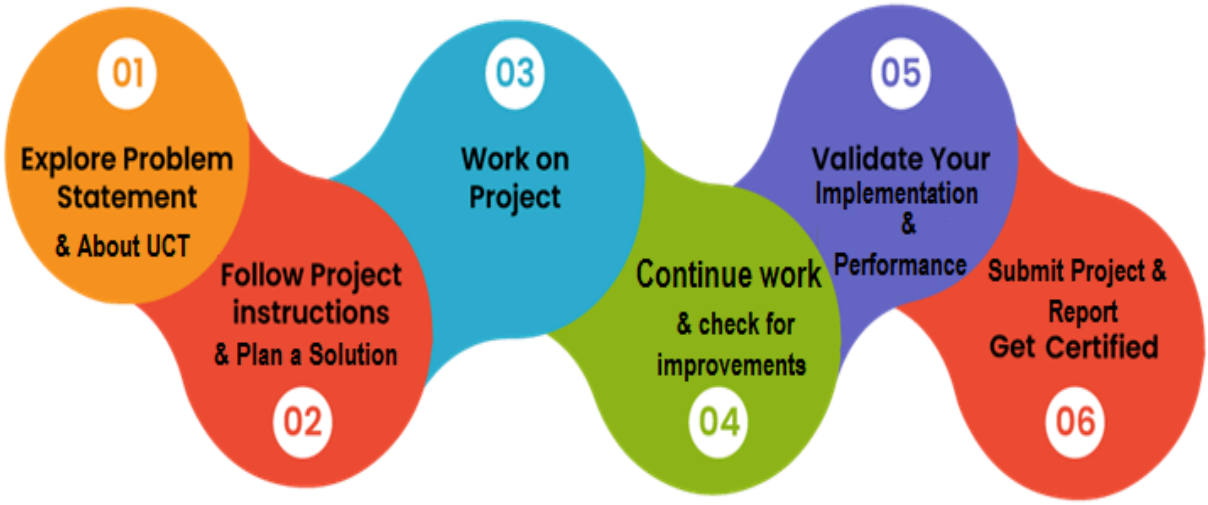
1 Preface

This internship provided me with an opportunity to gain practical exposure to Python programming and its real-world applications. Over the course of the internship, I worked on understanding core programming concepts and applying them to develop a Banking Information System as my final project. The internship helped me understand the importance of structured problem-solving, logical thinking, and clean code practices. I am grateful to Upskill Campus and UniConverge Technologies Pvt Ltd for designing this program and providing guidance throughout the internship period. This experience has strengthened my technical foundation and motivated me to further enhance my skills in software development.



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)

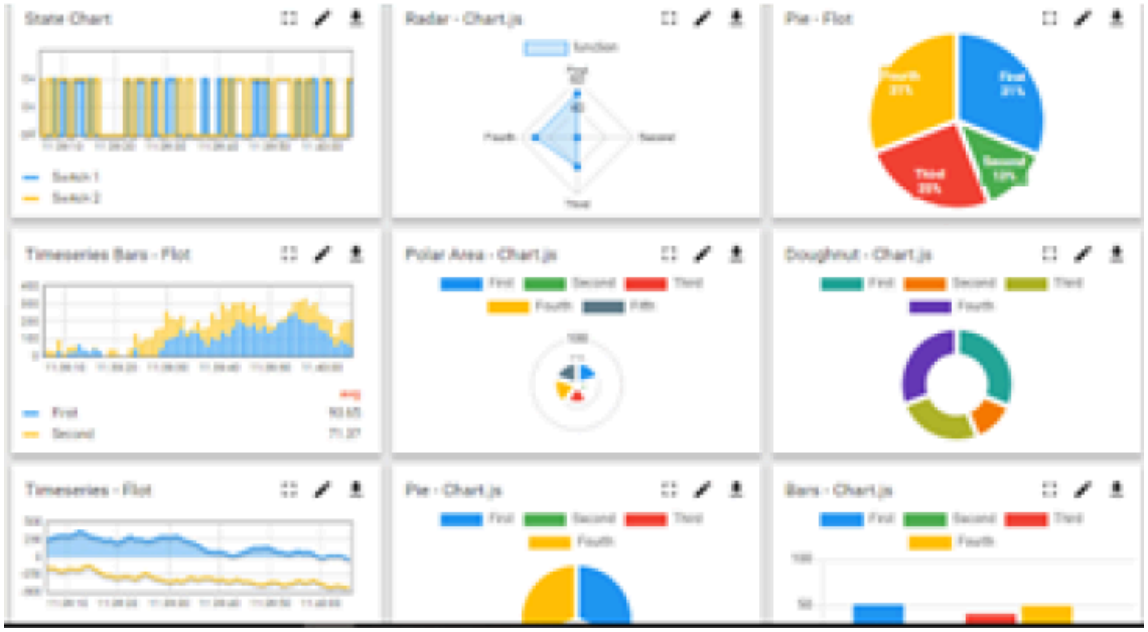
UCT Insight is an IOT platform designed for quick deployment of IOT applications on the same time providing valuable "insight" for your process/business. It has been built in Java for backend and ReactJS for Front end. It has support for MySQL and various NoSql Databases.

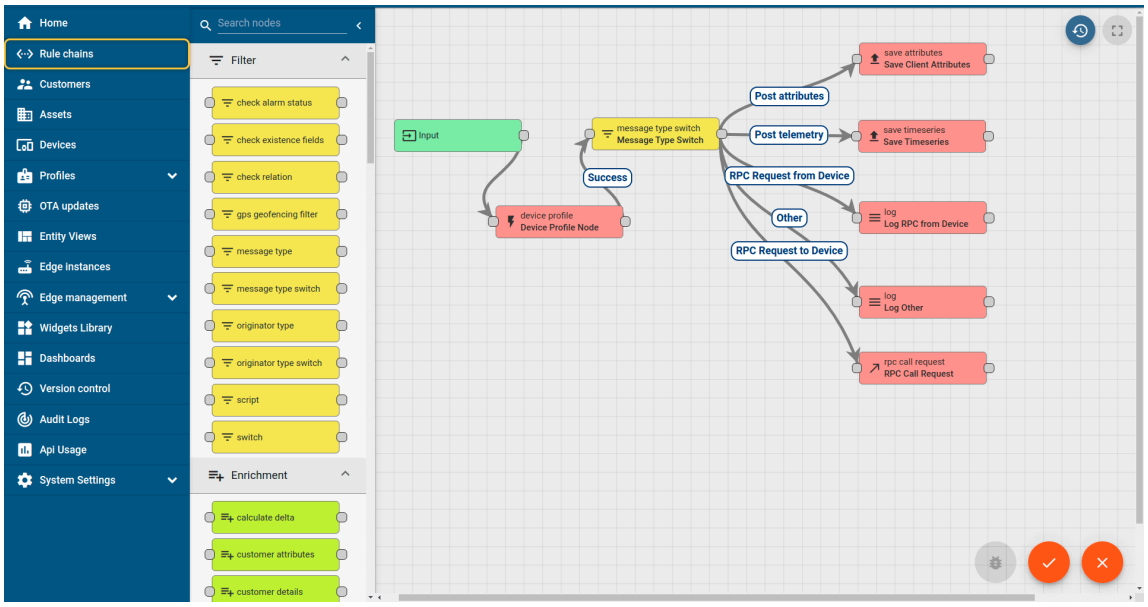
- It enables device connectivity via industry standard IoT protocols - MQTT, CoAP, HTTP, Modbus TCP, OPC UA

- 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.

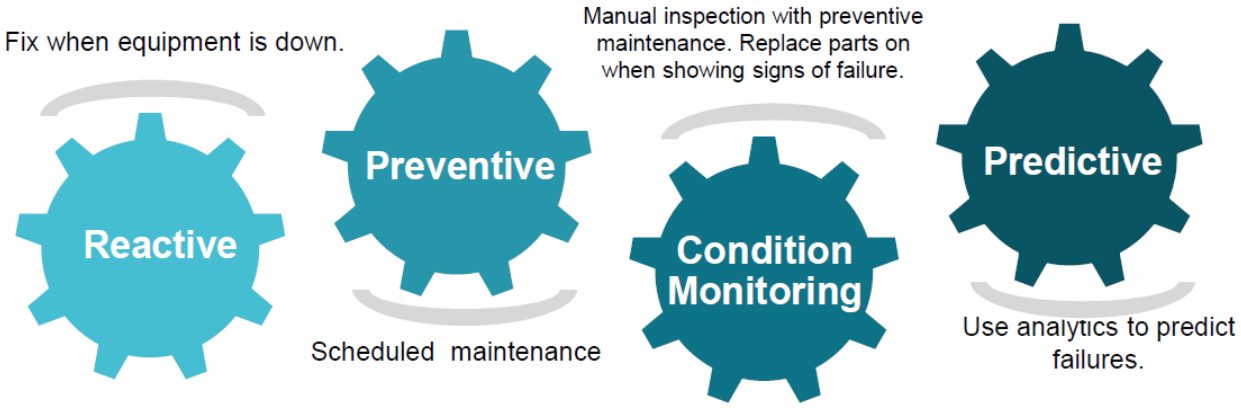
Machine	Operator	Work Order ID	Job ID	Job Performance	Job Progress		Output		Rejection	Time (mins)				Job Status	End Customer
					Start Time	End Time	Planned	Actual		Setup	Pred	Downtime	Idle		
CNC_S7_81	Operator 1	WO0405200001	4168	58%	10:30 AM		55	41	0	80	215	0	45	In Progress	i
CNC_S7_81	Operator 1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

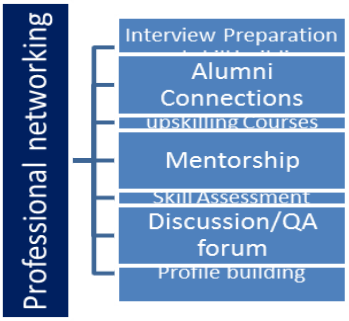
upskill Campus along with The IoT Academy and in association with Uniconverge technologies has facilitated the smooth execution of the complete internship process.

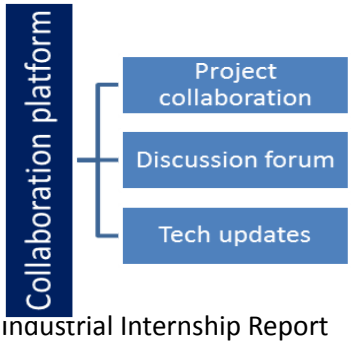
USC is a career development platform that delivers **personalized executive coaching** in a more affordable, scalable and measurable way.

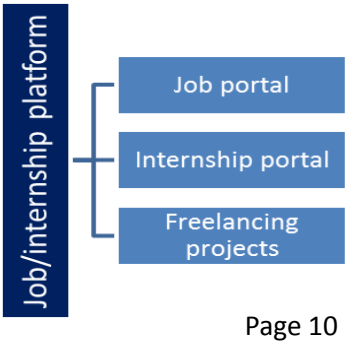
Seeing need of upskilling in self paced m additional support services e.g. Internship, projec ndustry experts, Career growth Services

h lcampus.com/

upSkill Campus aiming to upskill 1 million ext 5 year







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] Python Official Documentation – https://docs.python.org/3/

[2] GitHub Documentation – https://docs.github.com/

[3] Upskill Campus – https://www.upskillcampus.com/

2.6 Glossary

Terms	Acronym

Python	PY
GitHub	GH
Integrated Development Environment	IDE
Banking Information System	BIS
Console-based Application	CBA

3 Problem Statement

The problem statement of this project is to design and develop a simple Banking Information System using Python. Traditional banking operations such as maintaining account details, depositing money, withdrawing money, and checking account balance need to be managed accurately and efficiently. The objective of this project is to simulate basic banking operations through a console-based Python application, helping users understand how real-world banking systems function at a fundamental level while strengthening core programming concepts.

4 Existing and Proposed solution

Existing Solution

Traditionally, basic banking operations such as maintaining account details, depositing money, withdrawing money, and checking balances are performed manually or through complex banking software systems. These methods may require human intervention, are time-consuming, and are not suitable for understanding the fundamental logic behind banking operations for learning purposes.

Proposed Solution

The proposed solution is a Python-based Banking Information System that simulates basic banking operations through a console-based application. The system allows users to create an account, deposit money, withdraw money, and view account details in a simple and efficient manner. This solution focuses on clarity, accuracy, and ease of use, making it suitable for educational and learning purposes while demonstrating practical implementation of Python programming concepts.

4.1 Code submission (Github link)

https://github.com/Cjwasifa/upskillcampus/blob/main/BankingInformationSystem.py

4.2 Report submission (Github link)

https://github.com/Cjwasifa/upskillcampus/blob/main/BankingInformationSystem_Wasifa_USC_UCT.pdf

5 Proposed Design/ Model

The proposed design of the Banking Information System is based on a simple and modular Python program structure. The system follows a menu-driven approach where the user interacts with the application through console input and output. The program begins by collecting basic account details and then provides options for performing banking operations such as deposit, withdrawal, and balance enquiry.

Each banking operation is implemented using separate methods to ensure clarity and maintainability of the code. Conditional statements and loops are used to control program flow and allow repeated operations until the user chooses to exit the system. This simple design approach makes the application easy to understand, use, and modify, while effectively demonstrating fundamental Python programming concepts.

6 Performance Test

6.1 Test Plan/ Test Cases

The Banking Information System was tested using different user inputs to verify the correct functioning of all operations. Test cases included depositing valid and invalid amounts, withdrawing amounts within the available balance, and attempting withdrawals exceeding the balance. The system was also tested for correct display of account details.

6.2 Test Procedure

The program was executed in a Python environment, and user inputs were provided through the console. Each menu option was selected multiple times to ensure consistent behavior. The outputs displayed by the program were verified manually to confirm that the operations performed matched the expected results.

6.3 Performance Outcome

The system performed efficiently for all test cases without any errors or crashes. Since the application is lightweight and console-based, it requires minimal system resources. The response time for all operations was immediate, and the program behaved as expected under normal usage conditions.

7 My learnings

Through this internship, I gained a strong understanding of Python programming fundamentals and their practical application in real-world scenarios. Developing the Banking Information System helped me improve my logical thinking, problem-solving skills, and understanding of program flow using loops, conditional statements, and functions. I also learned the importance of writing clean and structured code, testing programs with different inputs, and using GitHub for version control and project submission. This internship has strengthened my confidence in Python programming and prepared me for more advanced software development tasks.

8 Future work scope

The current Banking Information System can be further enhanced by adding features such as data storage using files or databases, user authentication, and improved error handling. In the future, the system can be extended to include a graphical user interface (GUI) for better user interaction. Additional banking features such as transaction history and multiple account management can also be implemented to make the system more comprehensive.