

## Industrial Internship Report on "PASSWORD MANAGER"

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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 (Tell about ur Project)

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

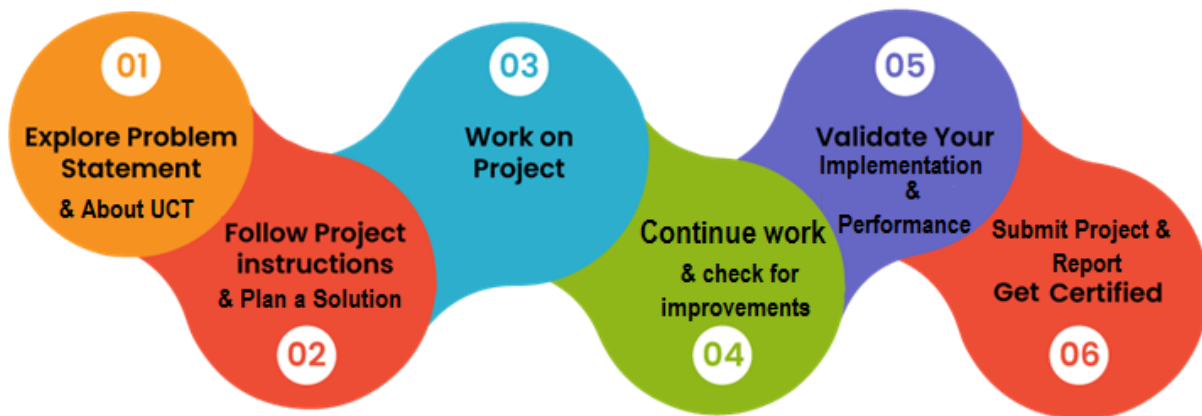
Summary of the whole 6 weeks' work.

About need of relevant Internship in career development.

Brief about Your project/problem statement.

Opportunity given by USC/UCT.

How Program was planned



Your Learnings and overall experience.

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

Your message to your juniors and peers.

## 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.



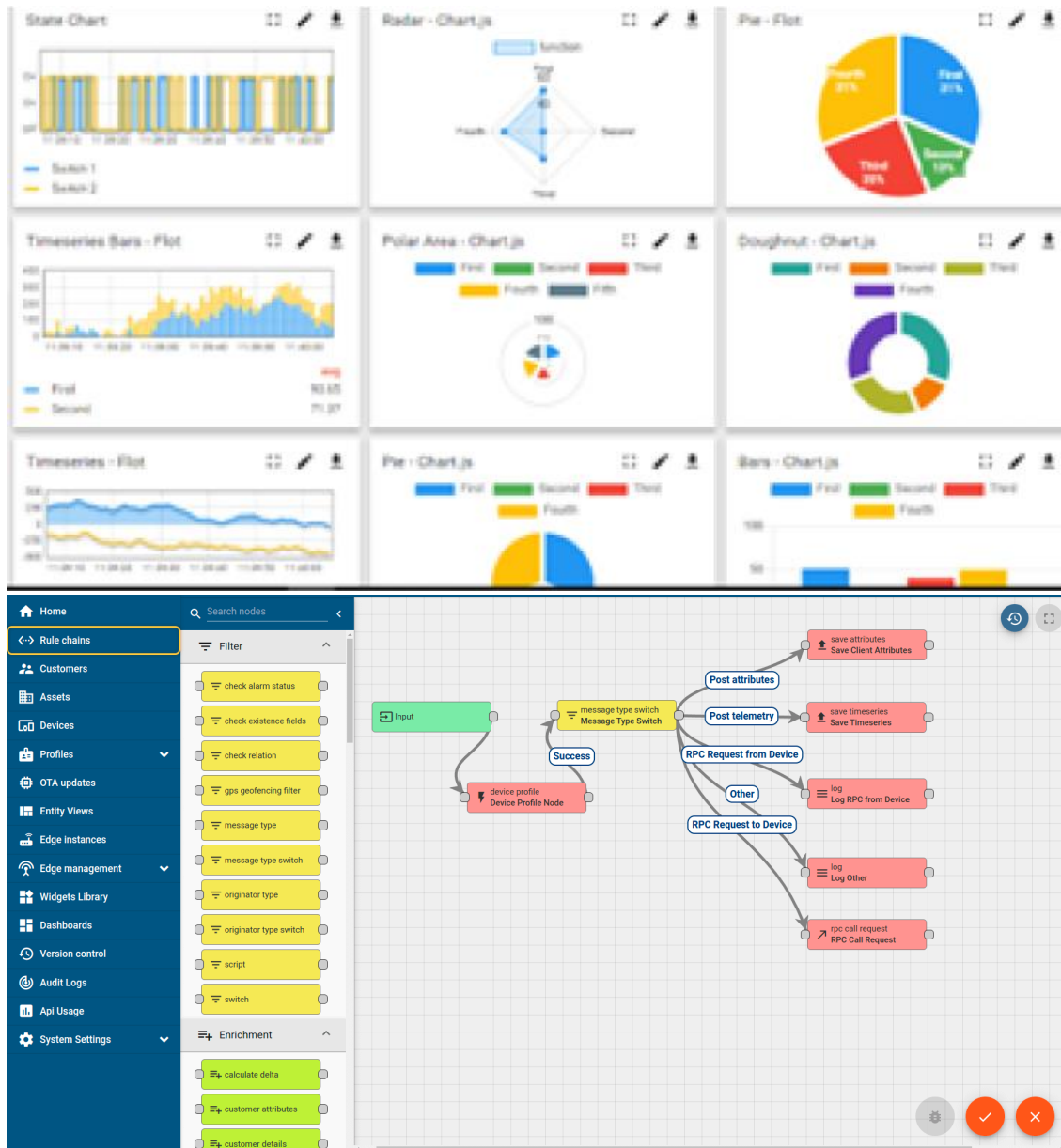
#### i. UCT IoT Platform ( **Insight** )

**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

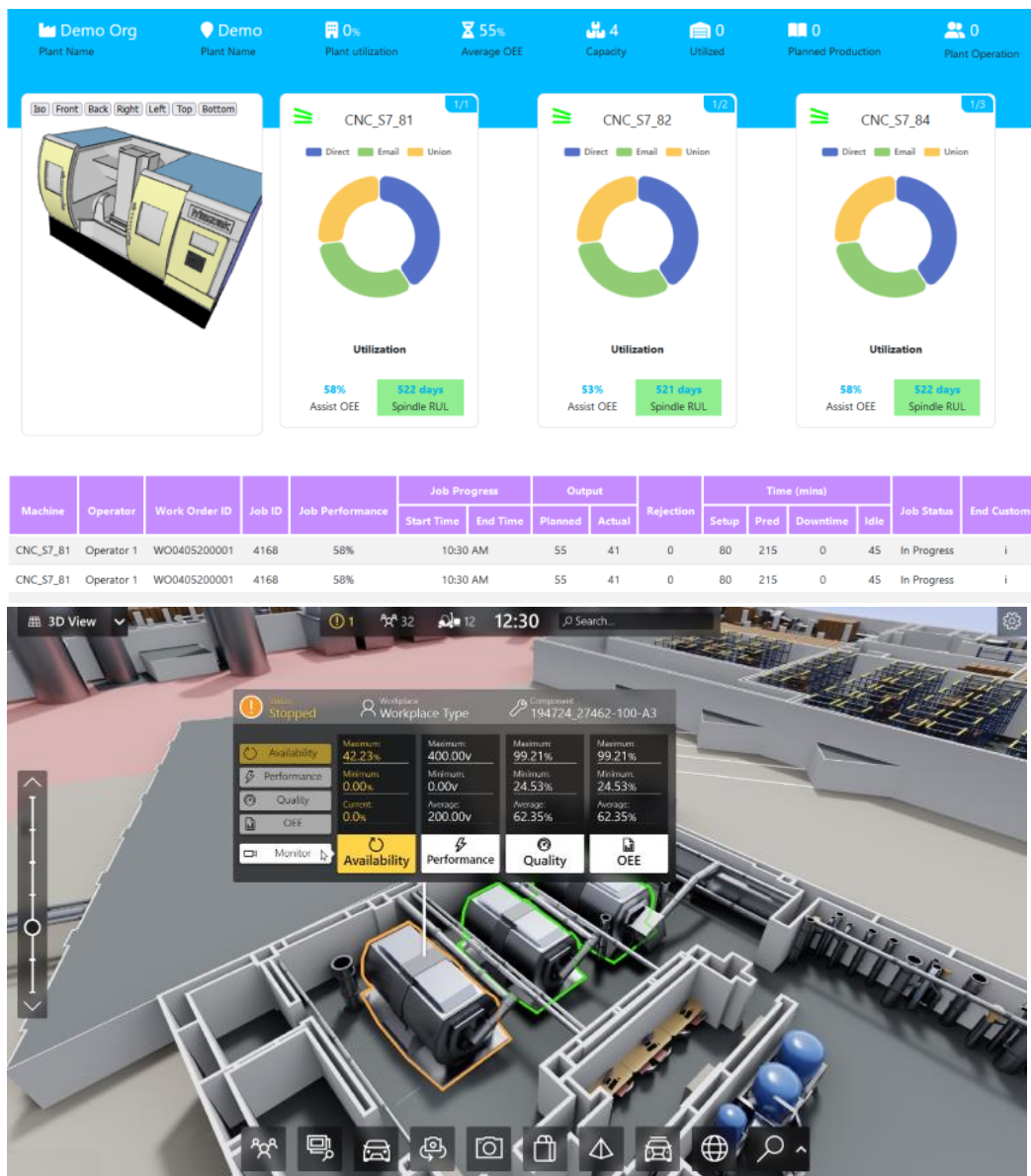
### ii. Smart Factory Platform ( )

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 unleash 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 want 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.







### 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.

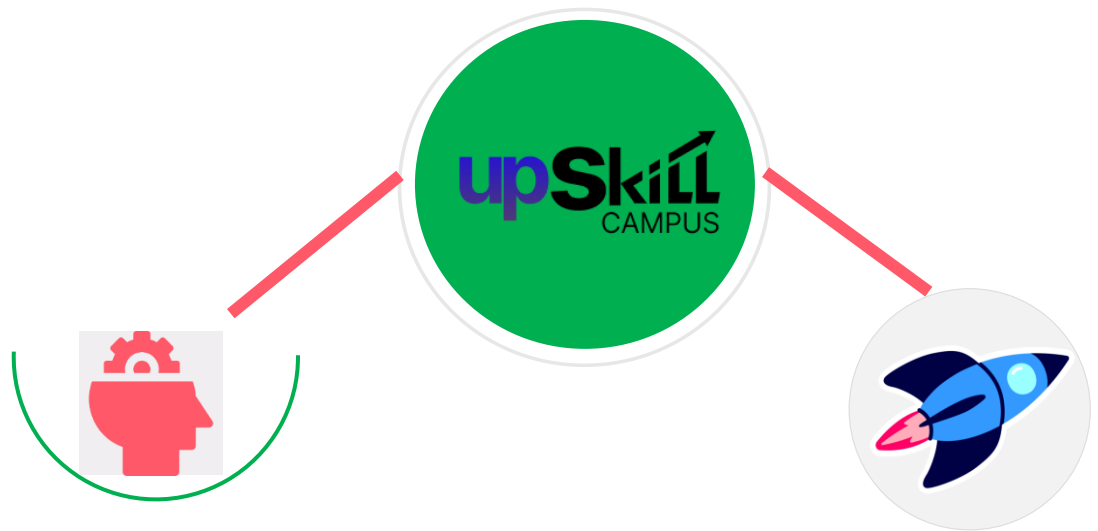


## 2.2 About upskill Campus (USC)

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.

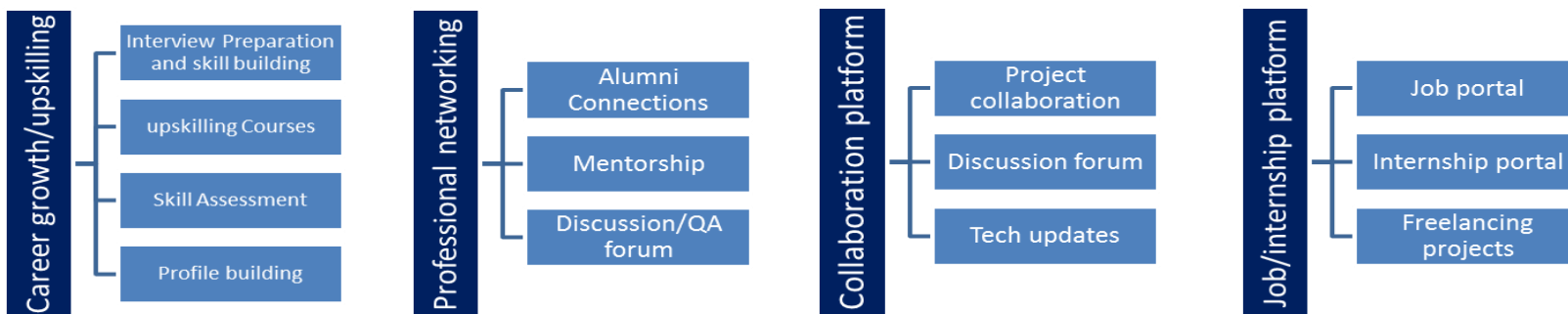




Seeing need of upskilling in self paced manner along-with additional support services e.g. Internship, projects, interaction with Industry experts, Career growth Services

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

<https://www.upskillcampus.com/>



### **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.

### **3 Problem Statement**

#### **Password Manager:**

##### **Description:**

The password manager is a Python project that securely stores and manages user passwords. It allows users to store their passwords for various accounts, generate strong passwords, and retrieve passwords when needed.

##### **Scope:**

The scope of this project involves implementing encryption algorithms to secure password storage, designing a user interface to input and retrieve passwords, and developing functions to generate strong passwords and store/retrieve them from a database.

## 4 Existing and Proposed solution

### Existing Solutions:

Current password managers like LastPass and Bitwarden offer robust encryption and cross-platform support, making them popular choices for managing passwords.

However, these solutions often require storing sensitive data on cloud servers, posing potential security risks.

Additionally, they can be overly complex for users who are not tech-savvy, leading to a steep learning curve.

### Proposed Solution:

My password manager addresses these concerns by storing all passwords locally, giving users full control over their data. The application features a simple, intuitive GUI, making it accessible to a broader audience.

By using the cryptography library, it ensures that all stored passwords are encrypted securely. The role-based login system ('host' and 'user') further enhances security by allowing different levels of access and management capabilities

#### **4.1 Code submission:**

GITHUB LINK: <https://github.com/Himanshu0166/upskillcampus.git>

#### **4.2 Report submission:**

GITHUB LINK: <https://github.com/Himanshu0166/upskillcampus.git>

## 5 Performance Test

### Test Scenario:

The password manager was tested for login performance using both the 'host' and 'user' roles.

The application was evaluated for responsiveness during password storage and retrieval, as well as the speed of encryption and decryption processes.

### Hardware and software requirement.

The testing was conducted on a system with an Intel i5 processor, 8GB RAM, and running Windows 10 with Python 3.10.(Additional external library cryptography).

### Results:

- The login process for both roles was completed within 1-2 seconds on average.
- Storing and retrieving passwords, even with a dataset of 500 entries, was completed in under 2 seconds.
- Encryption and decryption operations were efficient, with no noticeable delay, taking less than 1 second per operation.

## 6 My learnings

### Technical Skills:

Through this project, I significantly improved my Python programming skills, particularly in working with the Tkinter library for GUI development and SQLite for managing a secure database. I also gained valuable experience in implementing encryption using the cryptography library, which deepened my understanding of data security and password management.

### Project Management:

I learned the importance of time management and staying organized, especially when balancing multiple aspects of the project, such as coding, testing, and documentation. The process of debugging and optimizing the application helped me develop my problem-solving skills and reinforced the importance of thorough testing.

### Soft Skills:

This project improved my communication skills, as I needed to explain my work clearly to mentors and peers. I also learned to document my code effectively, making it easier for others to understand and use.

### Conceptual Understanding:

The project underscored the importance of security in software development. I now have a better appreciation for the need to protect user data and how to implement secure practices in my code.

### Future Application:

I am confident that the skills I've acquired during this project will be invaluable in my future endeavors. I look forward to applying my knowledge of GUI design, database management, and security in more complex projects.



## 7 Future work scope

Here, are some ideas that we could add in the future to improve the project.

### **Cloud Synchronization:**

One of the key areas for future development is the addition of cloud synchronization, allowing users to access their passwords from any device. This would involve implementing secure cloud storage and synchronization protocols to ensure that data remains protected during transmission.

### **Two-Factor Authentication (2FA):**

Enhancing security by integrating two-factor authentication would provide an additional layer of protection. This could be implemented using time-based one-time passwords (TOTP) or SMS/email verification codes.

### **Enhanced User Interface:**

There is potential to improve the user interface by making it more customizable and accessible. Future versions could include themes, language support, and features tailored for users with disabilities