# Industrial Internship Report on

# ”Python for Web Development”

## Prepared by

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| *Executive Summary* |
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| 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).<br><br>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.<br><br>My project was (Tell about ur Project)<br><br>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 on Python for web development project on Online Bookstore:
Week 1-2: Setup and Introduction to Python
Introduction to Python programming language
Setting up Python environment
Basics of Python syntax and data types
Week 3-4: Object-Oriented Programming (OOP) in Python
Understanding classes and objects
Creating classes for Book and BookCatalog
Implementing methods for adding books and searching the catalog
Week 5: Web Development Basics
Introduction to web development concepts
Basics of HTML, CSS, and JavaScript
Setting up a simple web server using Flask
Week 6: Integrating Python and Web Development
Creating a web interface for the BookCatalog
Displaying the catalog on a webpage
Allowing users to add books and search for books
The project involved learning Python programming concepts, implementing object-oriented programming principles, and integrating Python with web development technologies to create a functional online bookstore. The final result is a web application that allows users to view and interact with a catalog of books, add new books to the catalog, and search for books based on keywords.

About need of relevant Internship in career development.

Internships play a crucial role in career development for several reasons:

1. Hands-On Experience: Internships provide an opportunity to apply theoretical knowledge in a real-world setting, gaining practical experience that is valuable to future employers.

2. Skill Development: Internships help develop skills that are relevant to the industry, such as communication, teamwork, problem-solving, and technical skills.

3. Networking: Internships allow individuals to build professional networks by interacting with industry professionals, which can lead to future job opportunities.

4. Career Exploration: Internships provide a chance to explore different career paths within a specific industry, helping individuals make informed decisions about their future career goals.

5. Resume Building: Internships enhance resumes by showcasing practical experience and skills gained during the internship, making candidates more attractive to employers.

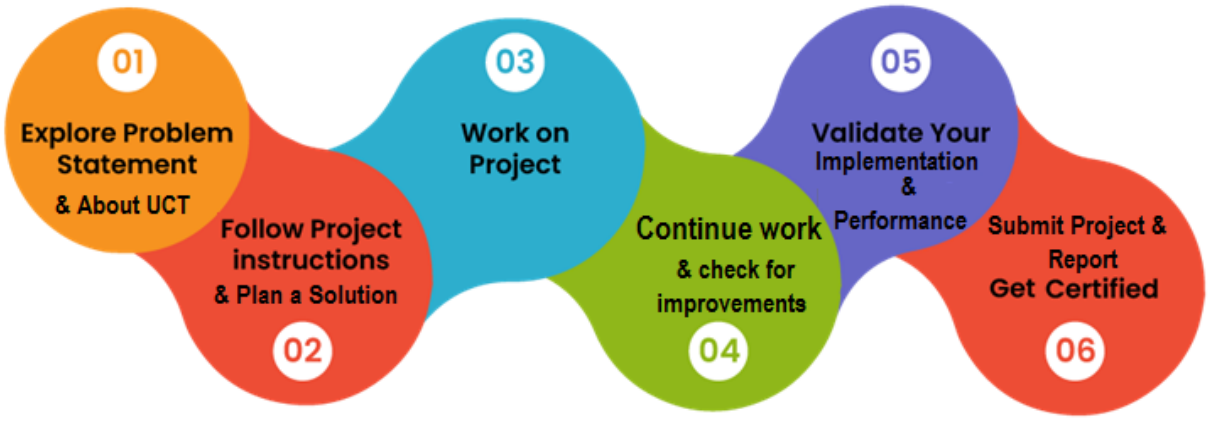
6. Job Opportunities: Many companies use internships as a recruitment tool, often offering full-time positions to successful interns after graduation.

Brief about Your project/problem statement.

The project is a simplified Python implementation of a book catalog for an online bookstore. It consists of two classes, Book and BookCatalog, which handle the creation, addition, and searching of books. The program allows users to add books to the catalog and search for books based on a keyword. The search results are displayed, including the book title, author, and price. The goal of the project is to demonstrate basic object-oriented programming concepts in Python and integrate them with a simple web interface using Flask, allowing users to interact with the book catalog through a web browser.

Opportunity given by USC/UCT.

How Program was planned




Your Learnings and overall experience.

The project was a great learning experience. I gained a deeper understanding on the concepts in Python. I also learned how to integrate Python with web development technologies, such as Flask, to create a simple web application.Flask Framework: I gained hands-on experience with Flask, a lightweight web application framework for Python, and learned how to use it to create routes and render templates. Problem Solving: Throughout the project, I encountered various challenges and learned how to solve them by researching, debugging, and experimenting with different approaches.

Thank to all my friends and my family.

My message to my juniors and peers.

I want to encourage you to dive deep into your projects and learning experiences. Embrace challenges as opportunities to grow and expand your skills. Don't be afraid to ask questions, seek help, and collaborate with others. Remember that every project, no matter how small, is a stepping stone to something greater. Stay curious, stay passionate, and keep pushing yourself to new heights. Your dedication and hard work will pave the way for a successful and fulfilling career in 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.

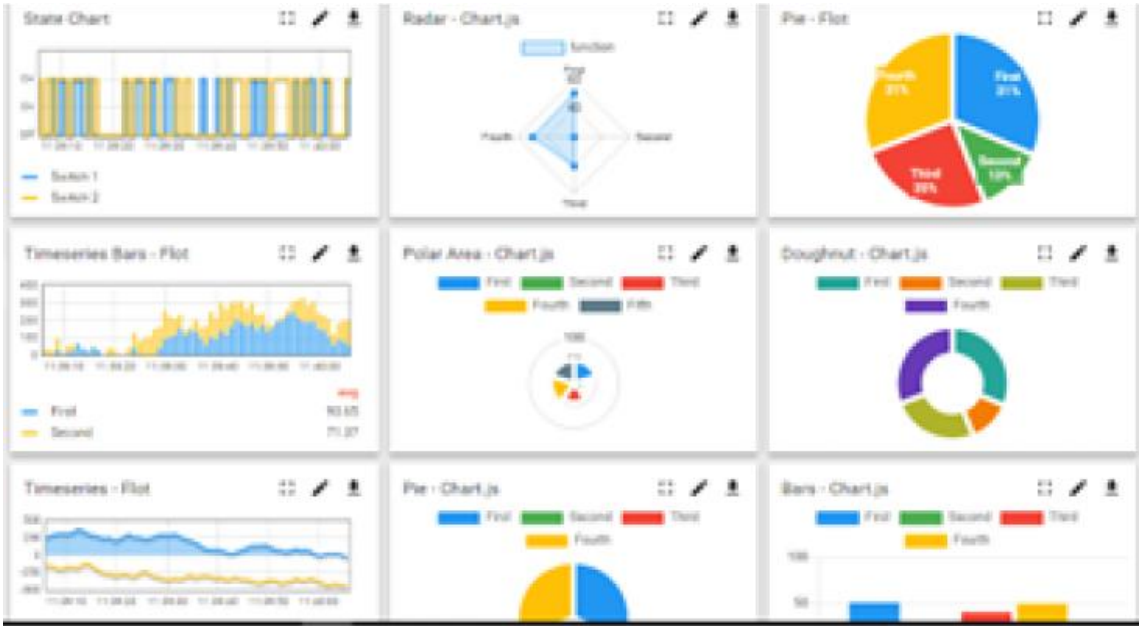

### i. UCT IoT Platform (UCT Insight)

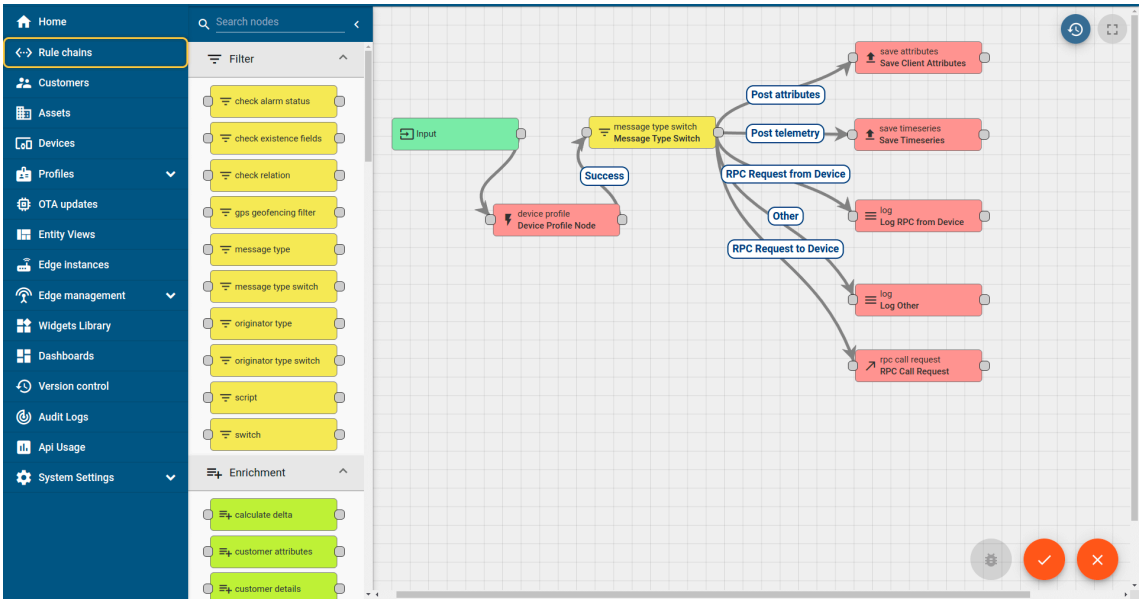
**UCT Insight** is an IOT platform designed for quick deployment of IOT applications on the same time providing valuable "insight" for your process/business. It has been built in Java for backend and ReactJS for Front end. It has support for MySQL and various NoSql Databases.

- 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 |
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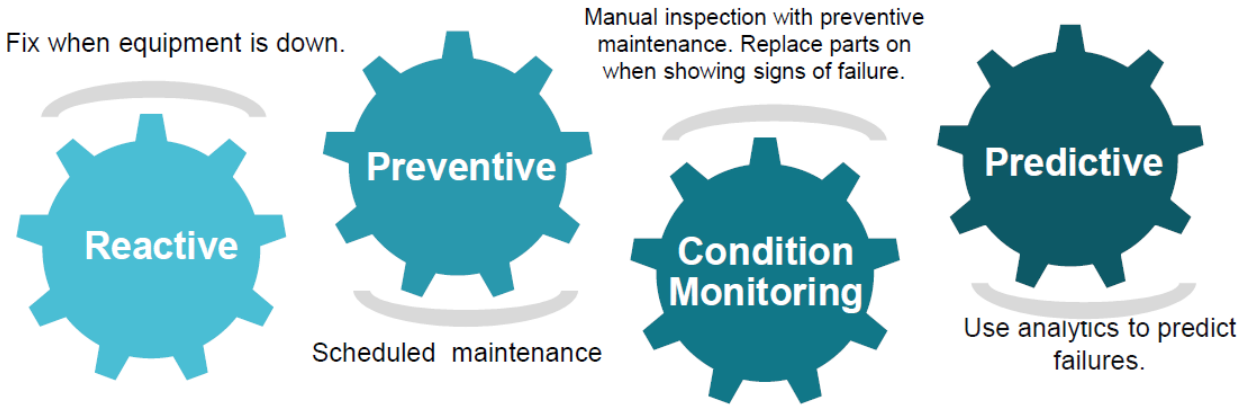
## iii. LoRaWAN based Solution

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

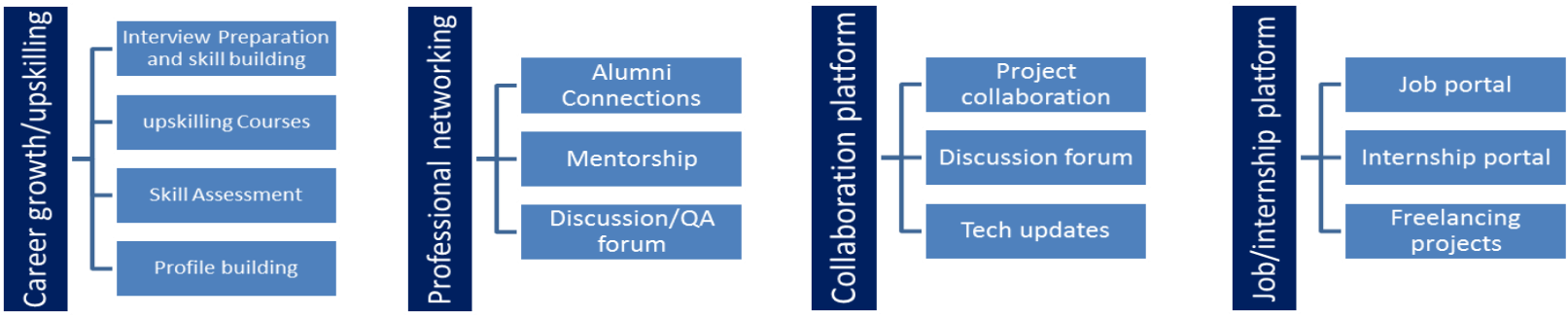
UCT is providing Industrial Machine health monitoring and Predictive maintenance solution leveraging Embedded system, Industrial IoT and Machine Learning Technologies by finding Remaining useful life time of various Machines used in production process.




### 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.




## 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]N/A

## 2.6 Glossary

| Terms | Acronym |
|---|---|
| Book | Book Catalog |
| Ctg | Catalog |
| Web | Web Development |
| Appl | Application |
| Flask | Framework |

# 3 Problem Statement

In the assigned problem statement

Develop a web-based book catalog application for an online bookstore. The application should allow users to add books to the catalog and search for books based on various criteria such as title, author, genre, and price. Users should also be able to view details of each book, including the book cover, description, and availability. The application should provide a user-friendly interface and ensure data integrity and security.

# 4 Existing and Proposed solution

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

What is your proposed solution?

What value addition are you planning?

## 4.1 Code submission (Github link)

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

# 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.

## 5.1 High Level Diagram (if applicable)

**Figure 1: HIGH LEVEL DIAGRAM OF THE SYSTEM**

## 5.2 Low Level Diagram (if applicable)

## 5.3 Interfaces (if applicable)

Update with Block Diagrams, Data flow, protocols, FLOW Charts, State Machines, Memory Buffer Management.

# 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.

How those constraints were taken care in your design?

What were test results around those constraints?

Constraints can be e.g. memory, MIPS (speed, operations per second), accuracy, durability, power consumption etc.

In case you could not test them, but still you should mention how identified constraints can impact your design, and what are recommendations to handle them.

## 6.1 Test Plan/ Test Cases

## 6.2 Test Procedure

## 6.3 Performance Outcome

# 7 My learnings

You should provide summary of your overall learning and how it would help you in your career growth.

# 8 Future work scope

You can put some ideas that you could not work due to time limitation but can be taken in future.