

Industrial Internship Report on

"File Organizer"

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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 "file organizer" project is a conceptual tool designed to help users manage and organize their files on a computer more efficiently. This project can be realized through a script or an application that automates the sorting and organization of files into specified folders based on their type.

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

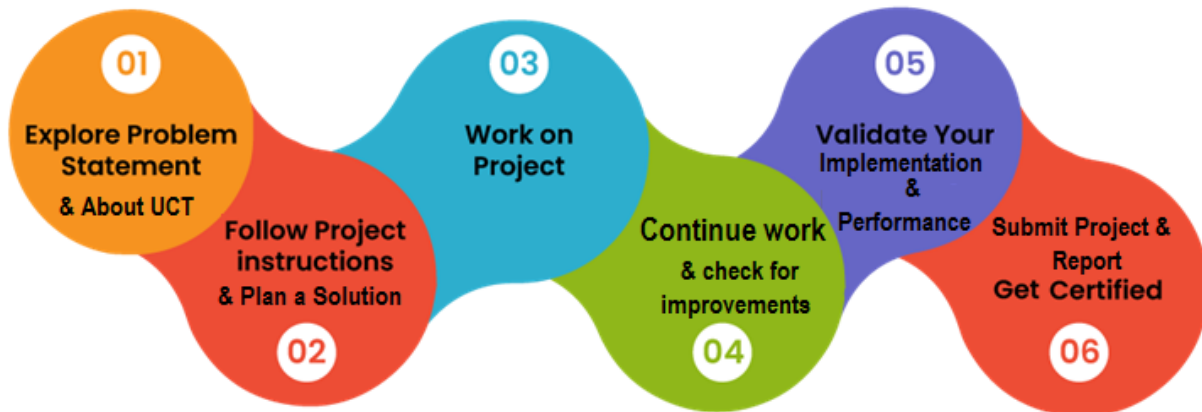
Summary of the whole 6 weeks' work.

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.



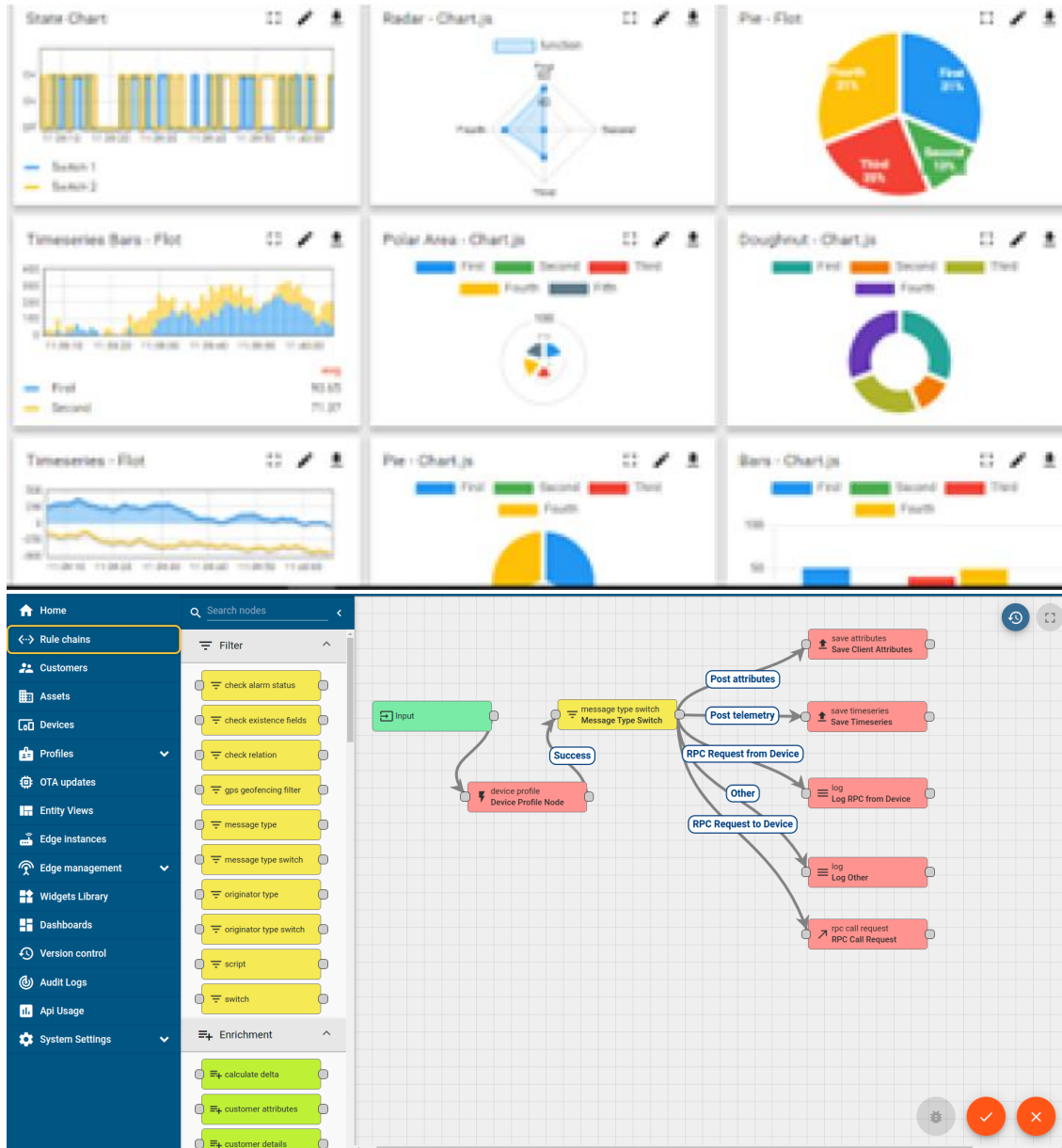
i. UCT IoT Platform ()

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.



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. 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

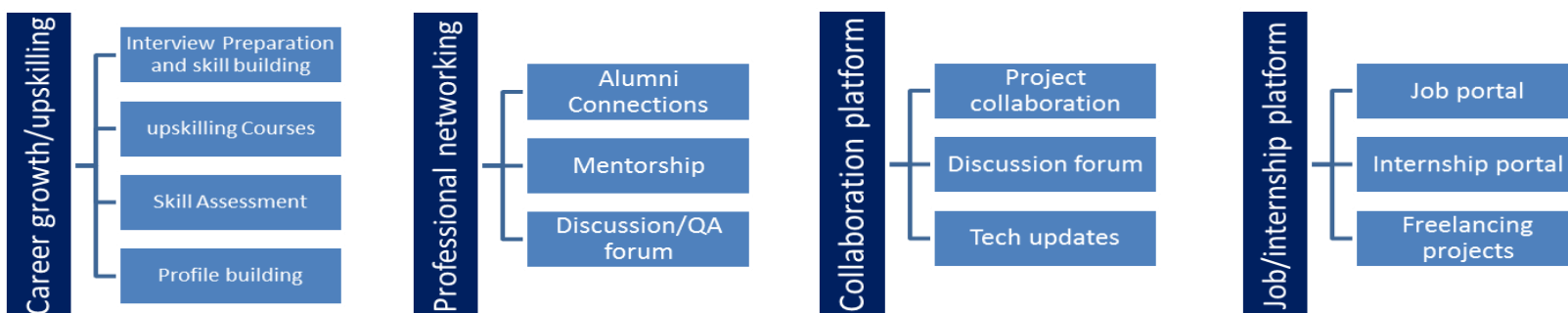
UCT is providing Industrial Machine health monitoring and Predictive maintenance solution leveraging Embedded system, Industrial IoT and Machine Learning Technologies by finding Remaining useful life time of various Machines used in production process.



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] <https://github.com/RiturajSaha/File-Organizer/blob/master/README.md>
- [2] [Automating File Management](#)
- [3] <https://medium.com/@hannanmentor/automating-file-management-with-python-622730d45ed6>

2.6 Glossary

Terms	Acronym
Python Libraries	OS,shutil,pathlib
File Extensions	.jpg,.jpeg,.mp4,.png,.pdf,.excel,.docx,.pptx
Creation Date	01/02/2024
Disk space	1KB
File organizer	Project

3 Problem Statement

In the assigned problem statement

The File Organizer Project aims to address the common issue of disorganized digital files across various devices and platforms. As the volume of digital data grows exponentially, individuals and organizations alike face challenges in managing their files efficiently. The clutter of unsorted files not only reduces productivity but also increases the time spent searching for specific documents, images, or other digital assets. Moreover, the lack of organization can lead to the duplication of files, consuming valuable storage space and making data management even more cumbersome.

In the digital age, effectively managing and organizing files is crucial for both personal and professional productivity. However, users often struggle with the following challenges:

1. **Volume of Data:** The sheer volume of files accumulated over time can be overwhelming, making manual organization impractical.
2. **Time Consumption:** Manually sorting, categorizing, and organizing files is time-consuming, often leading to procrastination and further disorganization.
3. **Inconsistency:** Without a standardized system, file organization can become inconsistent across different devices and storage locations.
4. **Duplication:** Identifying and removing duplicate files is challenging and tedious, leading to inefficient use of storage space.
5. **Accessibility:** Quickly locating a specific file or group of files can be difficult without a logical organization structure.
6. **Cross-Platform Compatibility:** With the use of multiple devices and operating systems, ensuring consistent file organization across platforms is a challenge.
7. **Integration with Cloud Storage:** As more data is stored in the cloud, seamlessly integrating local file organization with cloud storage solutions is increasingly important.

4 Existing and Proposed solution

The existing systems for file management and organization typically involve manual processes or basic computer functions that require significant user intervention. These systems range from simple folder structures created by users to organize their files, to slightly more advanced software features like search and sort options within file explorers. Some operating systems and third-party software offer basic automation tools, such as the ability to automatically sort photos into folders based on the date.

Limitations:

- Requires constant manual effort to maintain organization.
- Limited customization and flexibility in automation features.
- Inefficient handling of duplicate files.
- Lack of cross-platform integration for consistent file management across devices.
- Time-consuming searches due to lack of advanced indexing an

What is your proposed solution?

The proposed File Organizer Project introduces an advanced, automated system designed to address the limitations of existing file management systems. It leverages modern software development tools and technologies to provide a comprehensive solution that significantly reduces manual effort and enhances file organization.

What value addition are you planning?

- Significantly reduces the time and effort required for file management.
- Customizable and flexible to meet the specific needs of individual users or organizations.
- Enhances efficiency by reducing clutter and improving file retrieval times.
- Saves storage space by effectively managing duplicate files.
- Provides a unified file management system across local and cloud storage.

4.1 Code submission (Github link)

<https://github.com/AmariPasupuleti/upskillcampus>

4.2 Report submission (Github link):

<https://github.com/AmariPasupuleti/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.

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

To evaluate the performance of the File Organizer Project, we would need to consider several key metrics that reflect its efficiency, usability, and effectiveness in managing and organizing files. The performance output can be categorized into quantitative metrics and qualitative feedback, providing a comprehensive overview of the system's impact.

Improved understanding and application of programming languages (e.g., Python) and their use in automating tasks, managing files, and developing user interfaces. Understanding about path of our files and shutil module very well. Developed the ability to critically analyze requirements, design decisions, and potential solutions for their effectiveness and efficiency. Learning to manage time effectively, prioritize tasks, and meet deadlines in a dynamic project environment.

Reflecting on these learning outcomes, it's clear that participation in the File Organizer Project can significantly contribute to both my personal and professional growth. It provides a solid foundation for future projects and roles, equipping you with a broad set of skills and experiences.

8 Future work scope

The File Organizer Project, by addressing the critical need for efficient and automated file management, lays the groundwork for numerous avenues of future development. Here's an outline of potential future work scopes that could further enhance its capabilities, address emerging needs, and leverage new technologies:

8.1.1 Expansion of Features

1. **Advanced AI and Machine Learning Integration:** Implement machine learning algorithms to improve the system's ability to categorize files more accurately based on content analysis, beyond just file names and extensions.
2. **Natural Language Processing (NLP) for File Sorting:** Utilize NLP techniques to interpret file names and content, allowing for more intuitive sorting and searching based on natural language queries.
3. **Enhanced Duplicate Detection:** Develop more sophisticated algorithms for detecting duplicates, including similar images or documents, by analyzing file content rather than just file names and sizes.