

Industrial Internship Report on

” Python quiz game ”

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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)

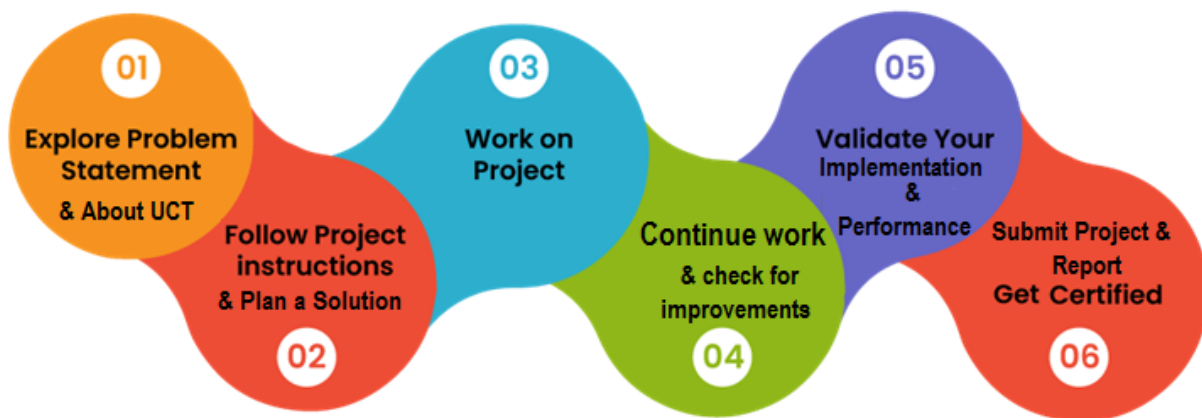
This internship gave me a very good opportunity to get exposure to Industrial problems and design/implement solution for that. It was an overall great experience to have this internship.

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1 Preface

- Over the past four weeks, I've engaged in a hands-on project creating a quiz game using Python and Pygame, courtesy of USC/UCT.
- This experience underscored the importance of practical internships in honing programming skills. The program's structured approach facilitated guided learning and skill development.



- I'm grateful for the mentorship and support provided by all upskills mentors throughout the project.
- Their guidance was instrumental in navigating challenges and achieving project milestones. To my peers, I emphasize the value of seizing internship opportunities for experiential learning and career advancement. Thank you to all involved for this enriching journey of growth and discovery.

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.



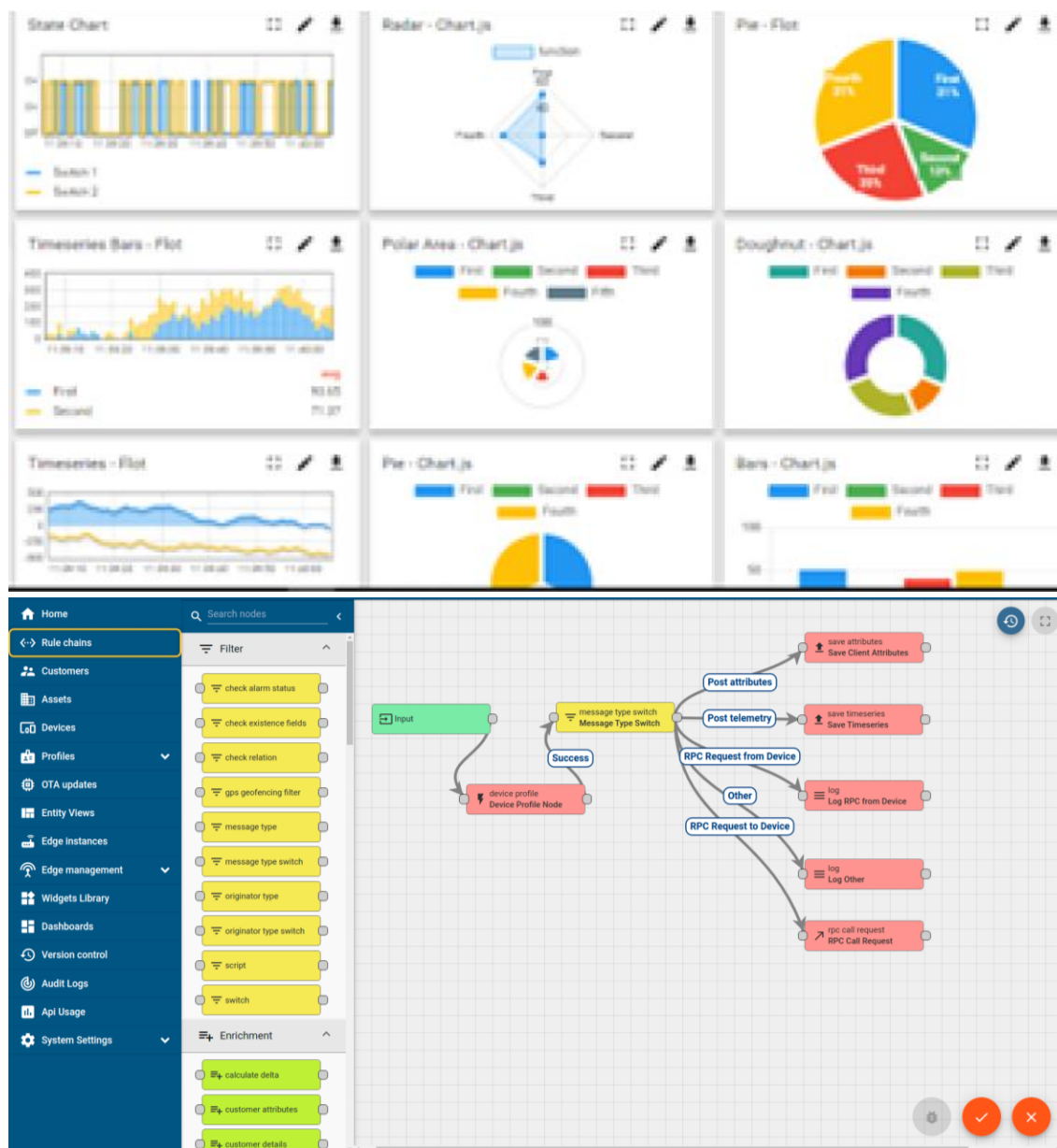
i. UCT IoT Platform ()

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
CNC_S7_81	Operator 1	WO0405200001	4168	58%	10:30 AM		55	41	0	80	215	0	45	In Progress	i



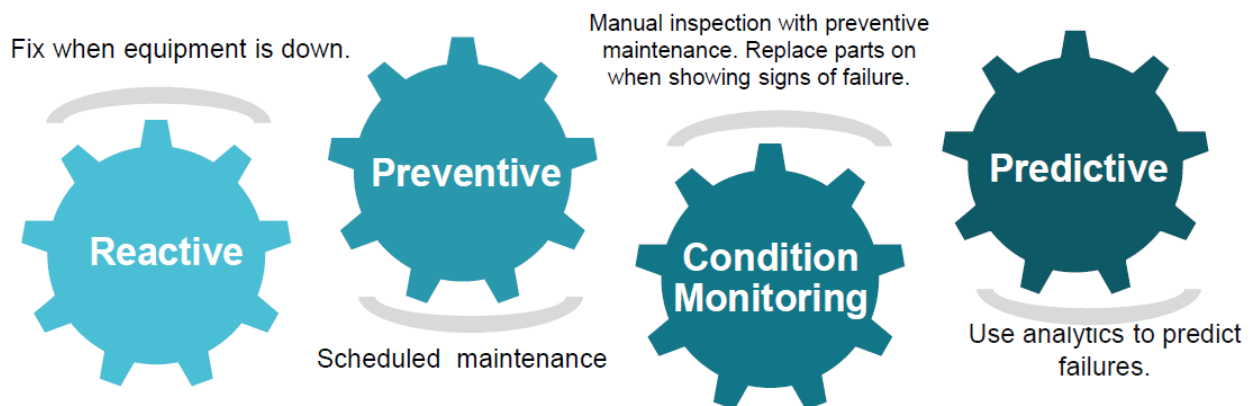


iii. LoRaWAN based Solution

UCT is one of the early adopters of LoRAWAN technology and providing solution in Agritech, Smart cities, Industrial Monitoring, Smart Street Light, Smart Water/ Gas/ Electricity metering solutions etc.

iv. Predictive Maintenance

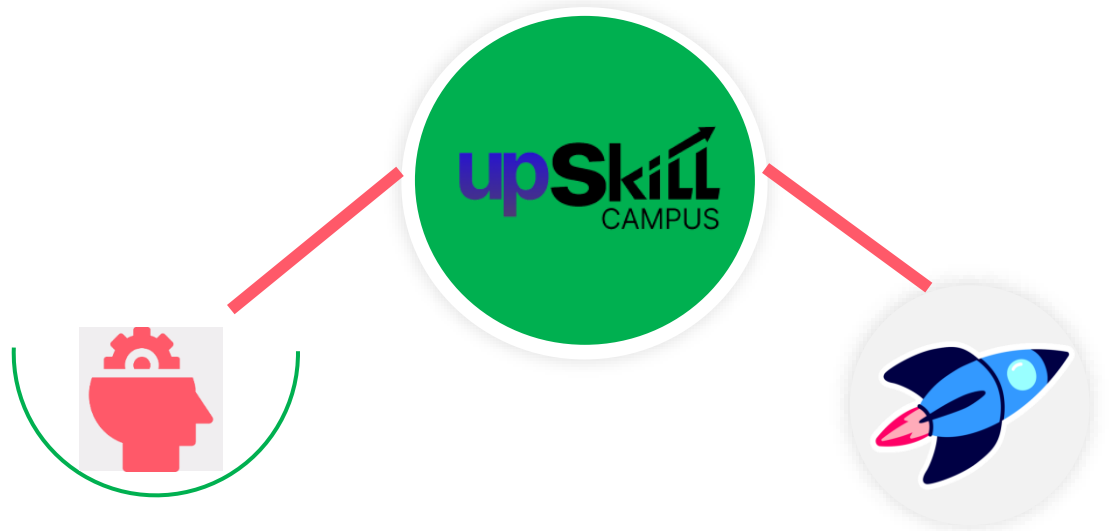
UCT is providing Industrial Machine health monitoring and Predictive maintenance solution leveraging Embedded system, Industrial IoT and Machine Learning Technologies by finding Remaining useful life time of various Machines used in production process.



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/>

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.

3 Problem Statement

In the assigned problem statement

- **A quiz game**
 - My project was to make a quiz game in which question should be fetched from a excel sheet.
 - My project is to create a quiz game that fetches questions from an Excel sheet. The Excel sheet will have questions, answer choices, and correct answers organized in rows and columns. I'll develop a software application to read the Excel file, display questions one at a time with answer choices, and evaluate user responses. The game will track scores and provide feedback. I'll ensure error handling for file format issues and test thoroughly before documenting the code.

4 Existing and Proposed solution

Existing Solutions:

- Current solutions lack flexibility, often using hardcoded questions or limited databases.
- Some fetch questions from APIs but lack customization options and integration with Excel sheets.

Limitations:

- Limited question variety and customization options.
- Lack of seamless integration with Excel sheets for question management.

Proposed Solution:

- Develop a quiz game that fetches questions from Excel sheets for easy customization and management.
- Provide a user-friendly interface with real-time evaluation and robust error handling.

Value Addition:

- Flexibility: Easy customization and expansion of question banks.
- Integration: Seamlessly integrate with Excel sheets for dynamic question management.
- Efficiency: Streamline quiz creation and management processes.

4.1 Code submission (Github link)

<https://github.com/vaghelamanav/Quiz-Game>

4.2 Report submission (Github link) :

<https://github.com/vaghelamanav/Quiz-Game>

5 Proposed Design/ Model

Problem Definition:

- Define the objectives of the quiz game, such as providing an interactive learning experience or entertainment.

Research and Exploration:

- Explore existing quiz games and Pygame tutorials to understand game development basics.

Data Collection and Preprocessing:

- Gather questions, answer choices, and correct answers in an Excel sheet.
- Preprocess the Excel data, ensuring it's structured appropriately for easy parsing.

Pygame Setup:

- Set up a Pygame project with necessary dependencies and configurations.

User Interface Design:

- Design the user interface for displaying questions, answer choices, and feedback using Pygame's drawing and text rendering capabilities.

Excel Data Parsing:

- Write code to parse the Excel data and load questions into the game.

Game Logic Implementation:

- Implement game logic for presenting questions, accepting user input, and evaluating responses.
- Handle transitions between questions and end-of-game scenarios.

Error Handling:

- Implement error handling for cases such as missing Excel files or incorrect data formats.

Testing:

- Test the game thoroughly to ensure correct functionality, including question loading, user interaction, and scoring.

Documentation:

- Document the code, explaining the functionality of each component and how to run the game.
- Provide instructions for customizing the quiz by updating the Excel sheet with new questions.

Refinement and Optimization:

- Refine the game based on user feedback and testing results.
- Optimize performance and usability where possible.

6 Performance Test

Memory Usage:

- Optimized data structures and minimized memory allocation.
- Loaded only necessary data from the Excel sheet to conserve memory.

Processing Speed:

- Optimized algorithms to minimize computational complexity.
- Efficiently handled question loading, user input processing, and answer evaluation.

Responsiveness:

- Designed responsive user interface and input handling.
- Ensured smooth interaction and feedback during gameplay.

Recommendations:

- Implement memory management techniques like lazy loading or data caching.
- Optimize algorithms and code efficiency to improve processing speed.
- Refine user interface interactions to enhance responsiveness and user experience.

7 My learnings

Python Programming:

- I deepened my understanding of Python programming by implementing game logic, data parsing from Excel sheets, and user interface design using Pygame.

Pygame Development:

- I learned how to use Pygame to create interactive and visually appealing applications, enhancing my skills in game development.

Data Handling:

- Working with Excel sheets for question storage improved my data handling skills, including parsing, manipulation, and error handling.

Problem Solving:

- I honed my problem-solving abilities by tackling challenges such as optimizing memory usage, processing speed, and user interface responsiveness.

Project Management:

- Managing the entire development process, from problem definition to testing and documentation, enhanced my project management skills and overall workflow efficiency.

These learnings have equipped me with valuable technical and soft skills that will undoubtedly contribute to my career growth. The hands-on experience gained from this project will enable me to tackle future challenges with confidence and proficiency, making me a more competent and effective developer in my field.

8 Future work scope

- Through this project, I've significantly enhanced my Python skills by implementing game logic and designing user interfaces using Pygame. Handling data from Excel sheets has improved my data manipulation abilities, while tackling challenges such as optimizing memory usage has sharpened my problem-solving skills.
 - Overall, this project has equipped me with a diverse skill set and increased confidence in my ability to tackle complex programming tasks, setting me up for continued career growth and success.
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