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St. Xaviers College, Jaipur

Industrial Internship Report on The New Product Development

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 about analysing the basics of the new product development and create an understanding of the strategies behind the launch of products in the market. 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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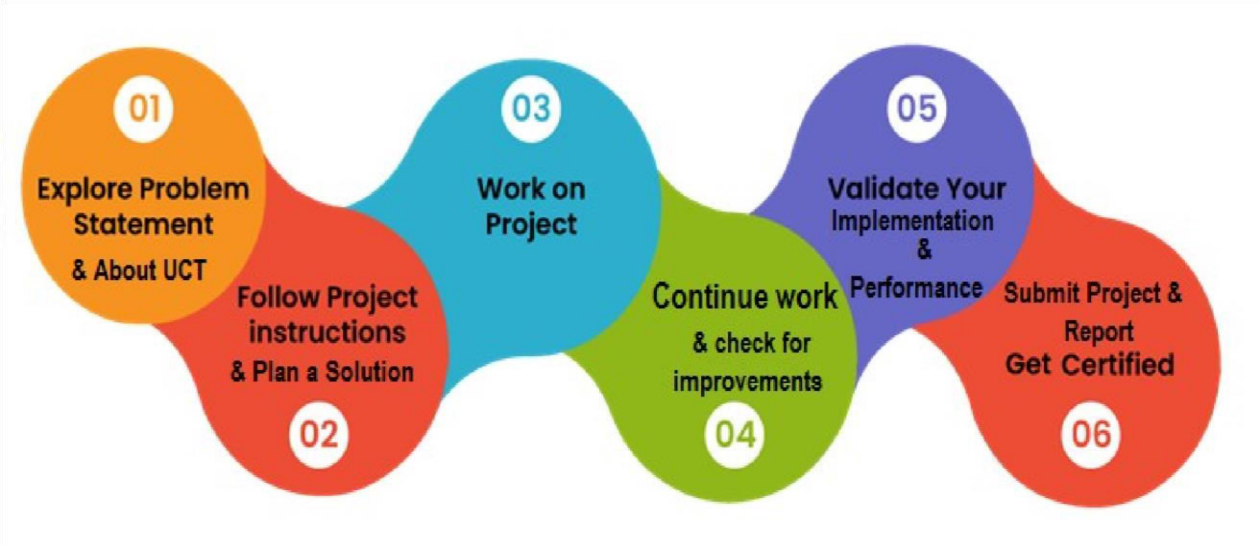
I. Preface

This report summarizes the six-week internship experience, highlighting the importance of practical exposure in career development. The internship provided an opportunity to work digital marketing projects

The internship was well-structured with planned deliverables, including data collection, preprocessing, and analysis. Special thanks to Upskill Campus, The IoT Academy, and UniConverge Technologies for providing this valuable experience.



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II. 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.

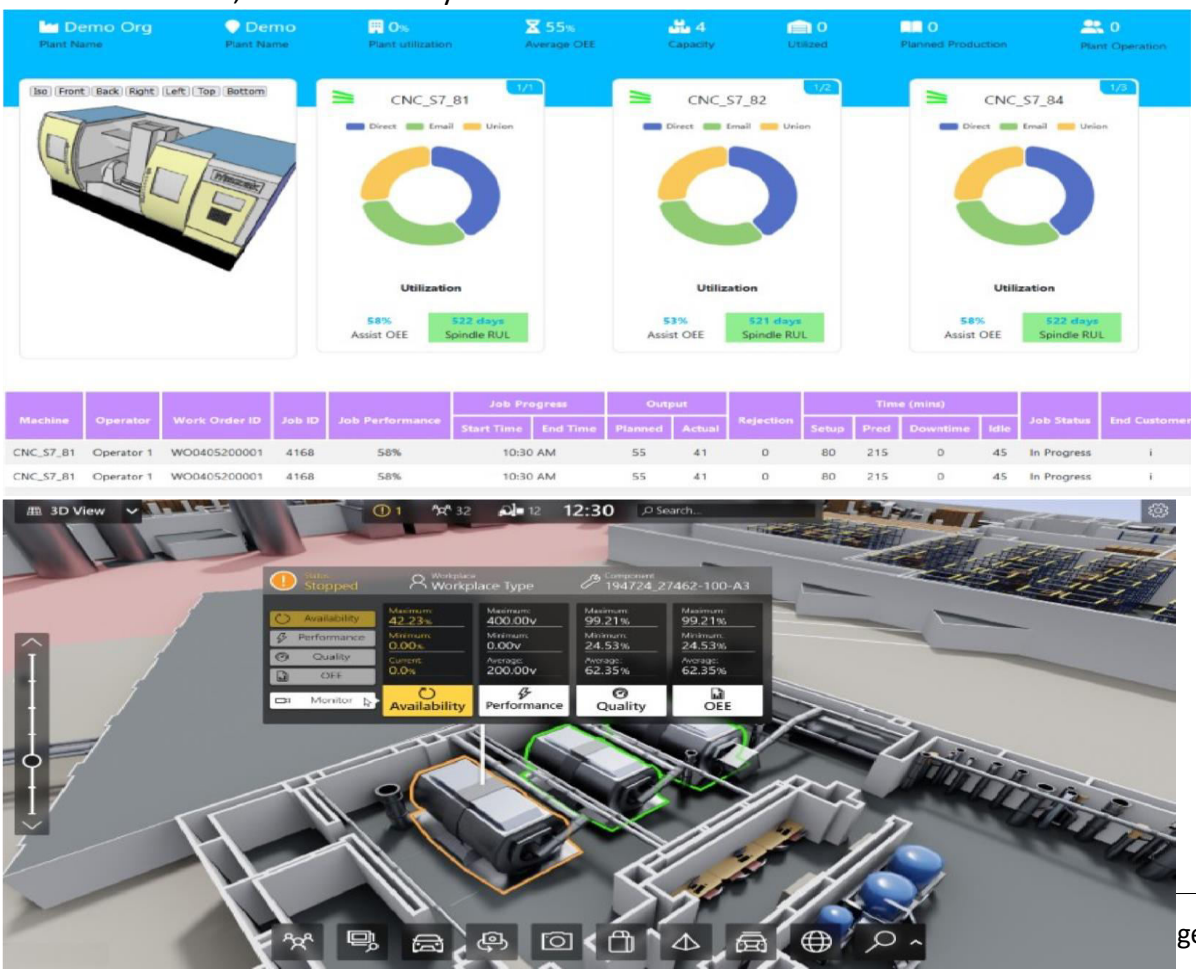
- It enables device connectivity via industry standard IoT protocols - MQTT, CoAP, HTTP, Modbus TCP, OPC UA
- It supports both cloud and on-premises deployments.
- It has features to
- Build Your own dashboard
- Analytics and Reporting
- Alert and Notification
- Integration with third party application(Power 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.

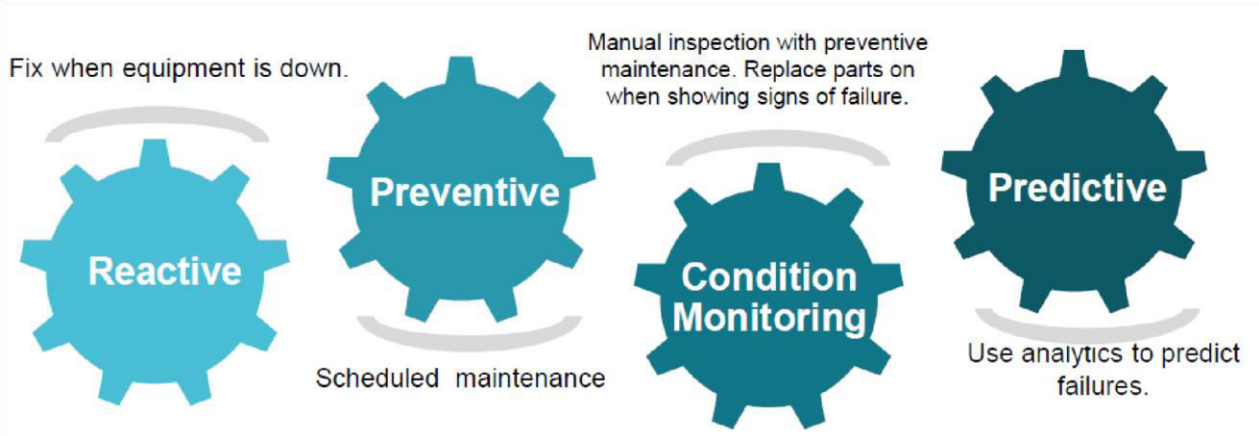


iii. LoRaWAN based Solution

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

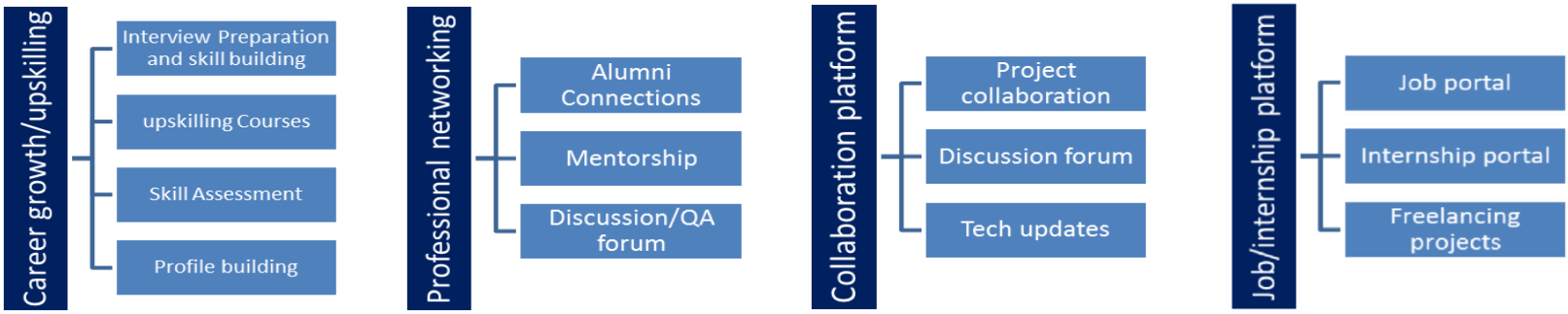
UCT is providing Industrial Machine health monitoring and Predictive maintenance solution leveraging Embedded system, Industrial IoT and Machine Learning Technologies by finding Remaining useful life time of various Machines used in production process.



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 of this industrial training was to have an exposure to the real time problems and to derive a scalable solution to the problems of the market based product development.

- 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://www.upskillcampus.com/internships

[2] https://www.productleadership.com/blog/product-development/

[3] https://www.geeksforgeeks.org/8-stages-of-new-product-development-process/2.

III. Problem Statement

- Describe the key issue, gap, or challenge that the new product will address. Identify what is currently missing in the market, what customer pain points exist, or what opportunities are being overlooked.

IV. Detailed Breakdown of Flow:

1. Idea Generation & Concept Development

- Idea Generation:
  - Brainstorming sessions (internally or with customers).
  - Trend analysis and market research (competitor analysis, customer surveys).
  - Innovation and technology scouting (new tools, materials, methods).
- Conceptualization:
  - Develop a concept brief that outlines the problem, solution, and product benefits.
  - Refine ideas into feasible concepts that align with company goals.

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2. Product Definition & Feasibility Study

- Market Validation:
  - Conduct surveys or focus groups with target customers.
  - Perform competitive analysis to ensure uniqueness.
- Technical Feasibility:
  - Assess the engineering requirements and technological constraints.
  - Determine resource availability (materials, manufacturing capabilities).
- Financial Feasibility:
  - Create an early business case to estimate cost, profit margins, and pricing.
  - Evaluate potential return on investment (ROI).

- Technical feasibility report (including high-level requirements and risks).

3. Product Design & Prototyping

- Design Development:
  - Translate concepts into detailed product designs (CAD models, sketches, engineering drawings).
  - Define functional specifications (performance, user interface, features).
- Prototyping:
  - Create an initial prototype (low-fidelity, working model, or proof of concept).
  - Test prototypes internally to evaluate functionality, usability, and design flaws.
- Design Iteration:
  - Use feedback loops to refine the design based on prototype testing.
  - Optimize the user experience (UX) and user interface (UI).

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4. Prototype Testing & Validation

- Beta Testing:
  - Conduct small-scale testing with real users (target audience).
  - Collect feedback on usability, performance, and user satisfaction.
- Quality Assurance (QA):
  - Test for product durability, safety, and reliability.
  - Ensure compliance with regulatory standards (e.g., safety, environmental laws).
- Market Validation:
  - Conduct focus groups or consumer testing to evaluate how well the product aligns with customer needs.

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5. Final Design & Pre-Production

- Design Finalization:
  - Finalize product design and confirm technical specifications.
  - Ensure designs are optimized for manufacturing (cost-effective, scalable).
- Pre-Production Planning:

- Select manufacturers and suppliers.
- Confirm materials, production capacity, and lead times.
- Finalize packaging design and branding elements.

- Pilot Production:
  - Run a pilot batch to test full-scale manufacturing processes.
  - Conduct pre-production quality checks.

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6. Production & Manufacturing

- Mass Production Setup:
  - Finalize production schedules and timelines.
  - Ensure that the supply chain and logistics are ready for large-scale manufacturing.
- Quality Control:
  - Implement rigorous quality control processes during production (e.g., inspections, testing).
- Manufacturing Execution:
  - Begin full-scale production, monitoring for any bottlenecks or issues.
- Distribution Preparation:
  - Prepare products for shipping to warehouses, retailers, or direct to customers.

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7. Marketing & Go-to-Market Strategy

- Branding & Positioning:
  - Develop a clear product message, value proposition, and key differentiators.
  - Finalize product packaging and marketing materials.
- Marketing Campaign:
  - Plan and execute a go-to-market strategy (launch events, online campaigns, influencer partnerships).
  - Create sales materials, including product brochures, ads, and digital content.
- Sales Channels:
  - Set up sales channels (e-commerce platforms, retail partnerships, direct sales).

- Create a pricing strategy based on market demand and competitor analysis.

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8. Product Launch & Distribution

- Launch Event:
  Execute the product launch, utilizing PR, media outlets, and social media to generate buzz.
- Retail and Online Distribution:
  Ensure that the product is available across physical and online stores.
- Customer Support:
  Set up customer service (FAQs, hotlines, online chat) to handle inquiries and post-launch feedback.

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9. Post-Launch Monitoring & Continuous Improvement

- Customer Feedback & Monitoring:
  Collect feedback from users via surveys, reviews, and social media to gauge customer satisfaction and product performance.
- Performance Evaluation:
  Analyze sales data, customer feedback, and market response to determine product success.
- Product Iterations & Updates:
  Based on feedback, plan for product improvements, bug fixes, or new features in subsequent releases.

V. Report submission (Github link) :

https://github.com/kashyapraj2003/UpskillCampus

VI. My learnings

- Market Understanding & Consumer Needs
- Product Feasibility & Viability
- Cross-Functional Collaboration
- Prototyping & Iteration
- Time Management & Resource Allocation
- Risk Management & Decision-Making
- Customer Feedback & Adaptation
- Marketing & Go-to-Market Strategy
- Post-Launch Evaluation & Continuous Improvement

VII. Future work scope

- NPD is an iterative, multi-phase process, and the lessons learned from each project should be applied to future product development efforts. The key to success lies in early market validation, cross-functional teamwork, continuous iteration, and real-time customer feedback.

- Outline the boundaries of the product development process. This includes the target audience, key features, timeline, budget constraints, and any specific standards or limitations to consider.