Agentic AI Hackathon

Team Section	
Name of team	LLMao
Team Member 1	Abhishek
Team Member 2	Prachi Parmar
Team Member 3	Qutubuddin Habib
Team Member 4	Sreevani R

Use Case Section		
Name of use case		ZeroDowntime.AI
Industry of use case		Manufacturing
Description of use case		ZeroDowntime.AI is an agentic approach to asset management. **It monitors uptime, reminds planned maintenance, suggests pre-emptive maintenance for equipment in a factory.** Also, it uses operational parameters from IoT sensors and SCADA systems to **identify patters and anomalies** indicative of equipment degradation. The goal is to achieve near zero unplanned downtime and increase efficiency by making the process of sustenance and machine operation transparent to all the stake holders. The **multi-agent, compound AI system** checks the machinery, forecast the time-series readings for generating maintenance recommendations and anticipate possible failures and alert the relevant personnel.
Challenges/hopes of each persona		
•	Persona A	**Plant Manager -** Manually collate information by taking readings from multiple machines, logbooks, and shift workers to analyse and create a daily plan. The maintenance activities for different hardware is retrieved from multiple tools or manuals which are used to schedule and monitor different repairs/upgrades. A one-stop shop would help, especially for newly hired employees.
•	Persona B	**CxO Level Executives -** Lack visibility on downtimes and inefficiencies from machine failures disrupt production resulting in loss of time, effort and money. Lack of transparency increases challenges in real-time decision-making. To address these, CxOs need automation, predictive analytics and alerting for continuous improvements.
As-is process (without Agentic AI)		• Plant head have to manually check from workers or logbooks including schedules every day they start their shift.

	• They have to manually monitor each parameter from IoT sensors to monitor equipment condition and operational efficiency which is labour intensive and prone to error. • CxOs have to rely on each plant SPOC for getting updates and challenges from each plant. It is slow and inefficient process with no transparency.

Solution Section	
To-be process (with Agentic AI)	ZeroDowntime.AI will be an advanced agentic AI-powered asset management system designed to optimize equipment reliability and operational efficiency within manufacturing environments. Leveraging multi-agent AI frameworks, it seamlessly integrates with IoT sensors and SCADA systems to deliver predictive insights, automate maintenance workflows, and ensure real-time operational transparency for all stakeholders. Key Features & Functionalities 1. Unified Asset Monitoring and Management Summary • AI Generated summary providing a comprehensive view of all factory equipment. • Consolidates data from IoT sensors, SCADA systems, and historical maintenance logs. • Simplifies decision-making for plant managers and CxOs with insight driven summaries. 2. Auto Predictive Maintenance and Anomaly Detection • Utilizes granite TTM to forecast time-series data and predict potential equipment failures. • Detects anomalies in operational parameters, triggering pre-emptive maintenance recommendations. • Reduces unplanned downtimes by identifying patterns of equipment degradation early. 3. Automated Maintenance Scheduling and Alerts • AI-driven scheduling engine that automatically plans maintenance activities based on historical data. • Sends proactive alerts and reminders to relevant personnel for scheduled maintenance activities. • Ensures compliance with maintenance protocols, minimizing human error. 4. Intelligent Insights and Decision Support • Provides actionable insights through AI-generated reports on equipment performance, downtime analysis, and maintenance efficiency. • Supports CxO-level strategic decisions with data-driven recommendations for process improvements.

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- Enhances transparency with detailed summary of maintenance activities, equipment status, and anomaly detection.

5. Future Roadmap: Role-Based Accessibility and Collaboration Tools
   - Offers customized interfaces for Plant Managers, Maintenance Teams, and CxO Executives.
   - Facilitates seamless communication and collaboration across departments with real-time data sharing.
   - Ensures secure, role-based access control to sensitive operational information.

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<tr><td colspan="2">Business value statement</td></tr>
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- Persona A

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Plant Manager -

- **Increased Efficiency**: Automated monitoring of plant machinery and increase uptimes by tracking IoT sensors.
- **Improved Maintenance Planning:** Proactive scheduling of maintenance activities by analysing historical trends resulting in increased uptimes.
- **Time Saving**: Reduced manual effort resulting in workers to have more time to engage in complex tasks.

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- Persona B

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CxO Level Executives -

- **Enhanced Decision-Making**: Detailed data-driven summaries provide CxOs with a holistic view of operations. This helps them in making business decision with better transparency.
- **Increase in Revenue:** Reduction in unplanned downtimes and increased throughput results in higher production capacity.

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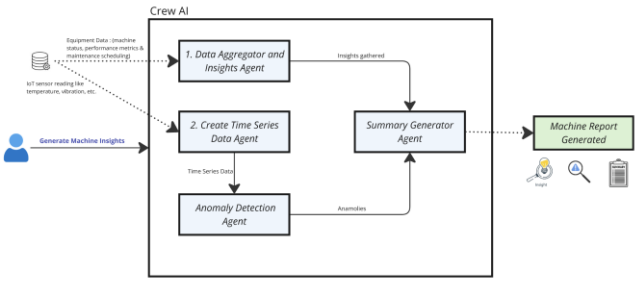
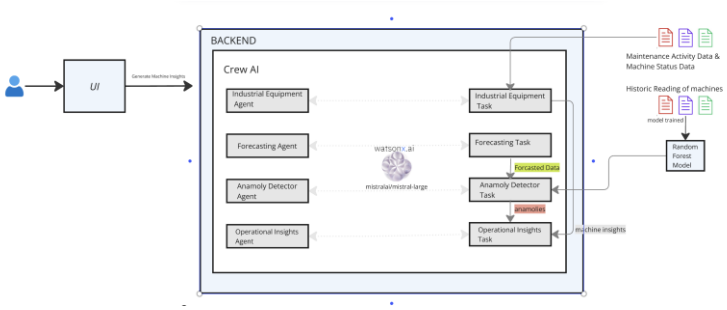
<tr><td>Architecture</td><td>

Functional



Technical Architecture:



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