EY Techathon 6.0 Executive Summary

Date of submission:

The better the question. The better the answer. The better the world works.

Shape the future with confidence

Quick introduction

TEAM TECHIONS

Our team brings together two MBA students, a B.Tech Computer Science Engineering student and a BCA student, combining management insight with technological understanding. We bring together diverse academic backgrounds and perspectives to approach challenges with a balance of analytical thinking, creativity, and practical problem-solving.

Tell us about yourself.

Highlight a technical skill or skills each member brings to the team

01#

Aaryaman Gupta

Experience/Area of Expertise:
Application development, AI Model integration, Multiple Hackathons Won

Skills contributed:
Agent orchestration, Prototyping, AI module development

B.Tech, Chitkara University

02#

Ananya Gupta

Experience/Area of Expertise:
Digital Transformation, Industry 4.0 strategy, Business Model Innovation, Product Roadmap Design

Skills contributed:
Problem Solutioning, Business Case Validation, Product Design, Go-to-market

MBA, IIM Shillong

03#

Ankur

Experience/Area of Expertise:
Operations Strategy, Process Optimization, Industry 4.0 Strategy

Skills contributed:
System Architecture, Process Flow Optimization, AI integration alignment with Solution KPIs.

MBA. IIM Shillong

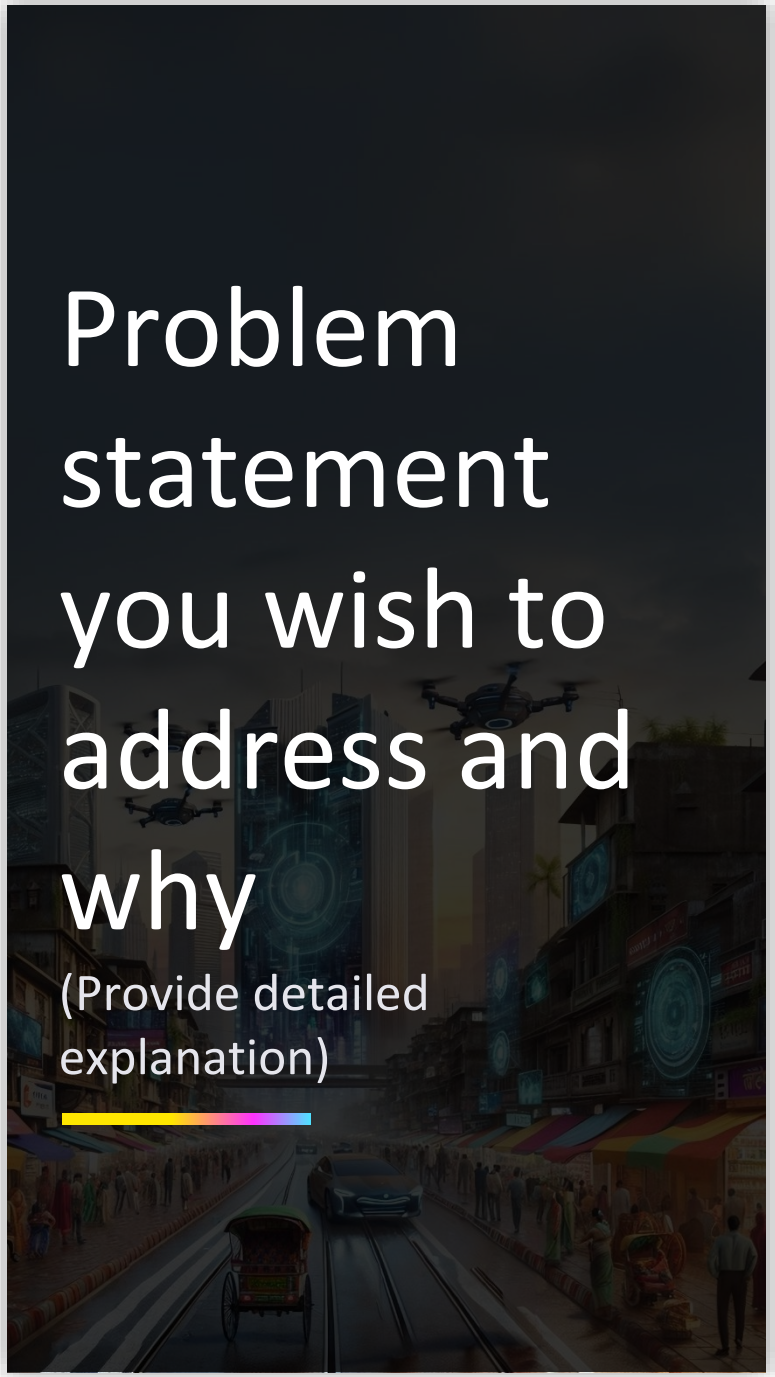
04#

Vrinda Soni

Experience/Area of Expertise:
React/React Native development and Application Integration

Skills contributed:
Prototyping and Interface Designing

BCA, Chitkara University



Problem statement you wish to address and why

(Provide detailed explanation)

Problem statement:

Challenge III: Automotive [Hero + M&M]

Hero & Mahindra's aftersales networks operate largely reactively: failures are identified post-breakdown, scheduling is manual, and manufacturing rarely receives structured RCA/CAPA signals from field failures.

This causes high unplanned downtime, suboptimal service-center utilization, repeated defects, rising warranty costs and poor customer retention.

The 'Why':

Social Lens:

India's mobility ecosystem affects millions of daily commuters and livelihoods of thousands of workshop technicians. Every unplanned breakdown isn't just a machine failure, it's a delivery delayed, a customer stranded or a small business losing revenue for the day. If predictive maintenance can prevent even a fraction of those, it's a tangible improvement in real lives, not just in KPIs.

Expertise Alignment:

Our team's combined expertise in business strategy, operations, and applied AI makes this challenge a natural fit. It allows us to merge our management understanding of process efficiency and value creation with our technical capability in data-driven automation and Agentic AI. Together, we can approach predictive maintenance not only as a technology solution but as an end-to-end business transformation that connects vehicle data, customer engagement, and manufacturing intelligence seamlessly

Describe your approach to solving the problem

(Describing Output Form Factor [Mobile App/Web App/Faceless Agent Execution/Chat Bot/Voice Bot Etc], Key User Group, User Journey.

Solution Concept:

We propose the **Connected Intelligence Hub powered by Agentic AI,** a unified, self-learning ecosystem that continuously monitors vehicle health, predicts failures before they happen, contacts customers proactively, auto-schedules service appointments and sends quality insights back to manufacturing.
The system runs through a Master Agent orchestrating multiple Worker Agents, ensuring seamless coordination, fast decisions as well as complete data security through UEBA monitoring.

Output Form Factor

- **Faceless Master Agent (Cloud):**
  Handles data orchestration, decision-making and security checks
- **Voice Bot & Chatbot:**
  Engages with customers for maintenance alerts and scheduling
- **Mobile App (Customer View):**
  Shows real-time vehicle health, service history and booking confirmations.
- **Web Dashboard (Service Center):**
  Displays daily workload, diagnostic data and appointment queue
- **Manufacturing Insights Portal:**
  Summarizes RCA/CAPA findings and quality improvement reports

Key User Groups

User Group	How They Benefit
Vehicle Owners / Fleet Managers	Receive proactive alerts and voice-based service bookings.
Service Center Staff	Get pre-diagnosed cases, optimized schedules, and better workload balance.
OEM Manufacturing & Quality Teams	Gain real-time insights on recurring issues for faster RCA and CAPA actions.
Security & Compliance Teams	Use UEBA monitoring to detect and prevent abnormal agent behavior.

User Journey

Continuous Monitoring:
Vehicle telematics data (temperature, vibration, error codes) is collected via IoT gateways

AI Detection:
The *Telemetry* and *Failure Prediction Agents* analyze patterns to detect potential failures days in advance

Customer Engagement:
A Voice Bot contacts the owner

Smart Scheduling:
The *Scheduling Agent* checks technician availability, part inventory and customer preference to confirm the best slot automatically

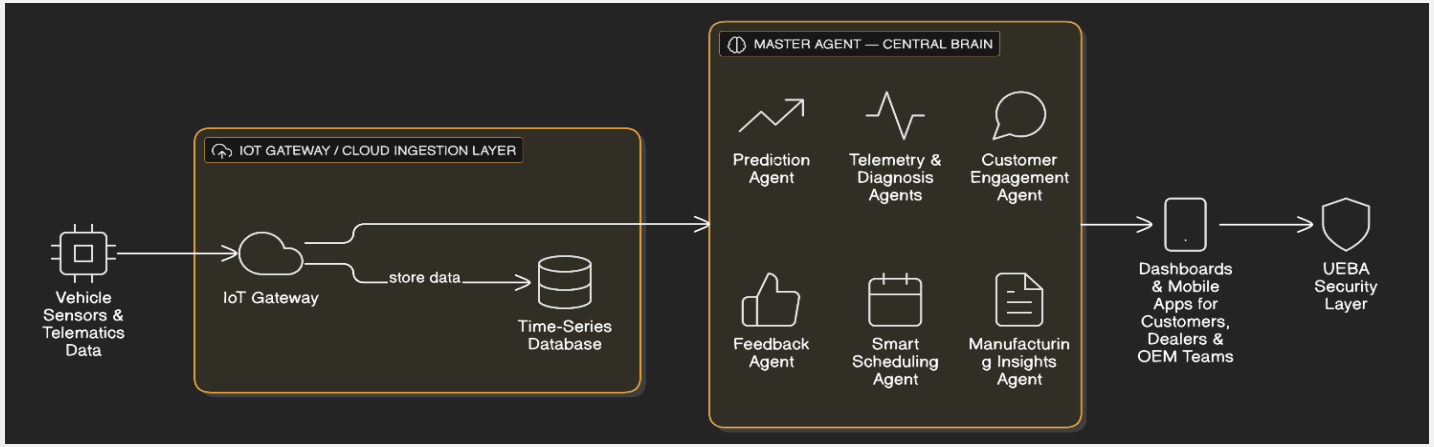
Service Execution & Feedback:
The *Feedback Agent* tracks service completion and captures customer satisfaction

RCA/CAPA Feedback Loop:
The *Manufacturing Insights Agent* correlates failure patterns with production batches and generates actionable reports for design improvement.

Planned solution design

(Diagram and Key Technology components planned for use)

System Architecture Diagram



Agents and their Functions

Agent	Function
Master Agent	Orchestrates all Worker Agents, manages workflow & Compliance
Telemetry & Data Agent	Reads vehicle data (RPM, vibration, temperature, error codes)
Failure Prediction Agent	Uses AI models to forecast potential breakdowns
Customer Engagement Agent	Interacts with customer through voice/chat
Smart Scheduling Agent	Matches customer, location & technician availability
Feedback Agent	Tracks service progress & captures feedback
Manufacturing Insights Agent	Correlates field data with production logs
UEBA Security Layer	Monitors all agent interactions for anomalies

Technology Framework

- **Data Ingestion:**
  IoT gateways + Telematics API feed
- **AI Models:**
  Failure prediction models and anomaly detection models for early warnings
- **Agentic Orchestration:**
  Cloud-based Master Agent
- **Engagement Channels:**
  API for voice & chat
- **User Interfaces:**
  - *Mobile App* for customers
  - *Web Dashboard* for service centers
  - *OEM RCA Portal* for manufacturing
- **Security Layer:**
  UEBA-based monitoring to flag unusual agent behavior, unauthorized data access, or workflow deviation.

Potential Benefit from your proposed solution

(Describe in detail the kind of benefit can be planned through your solution, Explain key Matrix, Potential Return on Investment)

Key Benefits

For Customers:

- Early warnings prevent unexpected breakdowns.
- Voice-based auto booking offers convenience and peace of mind.
- Faster service turnaround improves satisfaction and loyalty.

For Service Centers:

- Balanced daily load through AI-based scheduling.
- Reduced waiting times and higher technician productivity.
- Better forecasting of demand and spare parts usage.

For OEMs:

- Real-time visibility into recurring defects through RCA/CAPA insights.
- Lower warranty claims and improved product reliability.
- Stronger brand loyalty through a proactive aftersales experience.

Expected Improvements and RoI

Parameter	Value	
Assumptions		
Vehicles Monitored	10,000.00	
Avg Annual Unplanned Maintenance Cost per Vehicle (Rs)	4,000.00	
Baseline Annual Unplanned Maintenance Cost (Rs)	4,00,00,000.00	
Projected Savings		
Expected Reduction with Predictive Maintenance (%)	25.00	~25%
Annual Savings (Rs)	1,00,00,000.00	
Implementation & Operating Cost (Year 1) (in Rs)	25,00,000.00	
Net Benefit (Rs)	75,00,000.00	
ROI (%)	300.00	

Metric	Baseline	Expected with Our Solution	Improvements
Vehicle Downtime	8–10 hours	< 3 hours	↓ 65%
Workshop Utilization	68%	90%	↑ 22 pp
Warranty Claim Frequency	15%	8%	↓ 47%
Customer Retention (2 years)	70%	88%	↑ 18 pp
CAPA Resolution Time	90 days	25 days	↓ 3.6× faster
Service Booking Conversion	~40%	>65%	↑ 25 pp

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Thank you for your attention!

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