AI Xplore

Hackathon 2K26

PROBLEM STATEMENTS

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PS-ID: AX-01

TITLE: AI-Powered Deepfake & Identity Fraud Detection System.

PROBLEM STATEMENT

With the rise of deepfake content and AI-generated identities, fraudsters exploit digital platforms for impersonation and financial scams. Current systems fail to detect multi-modal threats in real time.

EXPECTED SOLUTION

- **Multi-modal AI detection (video, audio, text).**
- **Facial inconsistency & voice cloning detection.**
- **Behavioral identity verification models.**
- **Risk scoring engine for fraud classification.**
- **Real-time alert APIs for apps/platforms.**

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PS-ID: AX-02

TITLE: Banner Theft Detection System

PROBLEM STATEMENT

In this challenge, you will design and develop a digital anti-theft monitoring system for outdoor advertising banners. The system should detect unauthorized removal or tampering of banners and provide real-time insights and alerts to stakeholders.
Students will:

- **Identify key scenarios where banner theft occurs and define trigger conditions (e.g., sudden disappearance, tampering, unusual movement)**
- **Design a monitoring system using inputs such as:**
- **Camera feeds (computer vision)**
- **Sensor data (motion, tension, vibration — simulated if hardware not available)**
- **Develop algorithms or logic to detect anomalies or theft events**
- **Build a real-time dashboard to track the status of multiple billboard locations**
- **Implement alert systems (SMS, app notifications, email) for immediate action**
- **Ensure the system is scalable across multiple locations and easy to deploy**
- **Focus on cost-effective solutions, considering low-resource environments**
- **Optionally explore AI/ML models for visual detection of banner presence/absence**

EXPECTED SOLUTION

- **The final solution should demonstrate how a digital monitoring and alert system can:**
- **Detect and prevent unauthorized removal of billboard banners**
- **Provide real-time visibility across multiple advertising locations**
- **Reduce financial losses and improve campaign reliability**
- **Eliminate the need for destructive anti-theft practices**
- **Enable smarter, data-driven management of outdoor advertising assets**
- **Ultimately, the system should act as a digital security layer for outdoor advertising, ensuring that campaigns remain visible, intact, and protected.**

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PS-ID: AX-03

TITLE: Order Management System.

PROBLEM STATEMENT

In this challenge, you will design and develop a centralized order management system that captures and processes orders from multiple channels—calls, emails, WhatsApp, and website—ensuring zero order loss and seamless billing.

Students will:

- **Identify gaps in current order capture and processing workflows**
- **Design a multi-channel integration system for all order sources**
- **Build a real-time dashboard for tracking and managing orders**
- **Automate workflows for estimates, approvals, and invoicing (e.g., Zoho integration)**
- **Implement alerts and fail-safes to prevent missed orders**
- **Ensure the system is scalable, user-friendly, and reduces manual effort**
- **Explore AI/automation for extracting and structuring order data**

EXPECTED SOLUTION

- **The solution should demonstrate how a unified digital system can:**
- **Ensure 100% order capture across all channels (including website)**
- **Eliminate revenue leakage**
- **Enable 24/7 order handling**
- **Improve efficiency and coordination**
- **Provide real-time visibility of operations**
- **Ultimately, the system should act as a single source of truth for all orders, transforming fragmented inputs into a streamlined, reliable workflow..**

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PS-ID: AX-04

TITLE: Workflow Optimisation for Shopfloor.

PROBLEM STATEMENT

In this challenge, you will design and develop a digital workflow system tailored for shop-floor operations in manufacturing units like Ashta Tech Automation. The system should enable real-time tracking, efficient job allocation, and improved coordination between machines and personnel—ultimately increasing operational efficiency beyond current levels.

Students will:

- **Identify key inefficiencies in current shop-floor workflows, including idle time, bottlenecks, and communication gaps**
- **Design a digital job management system that allows easy assignment, tracking, and prioritization of tasks**
- **Develop a real-time monitoring dashboard to track machine status (running, idle, breakdown) and job progress**
- **Create mechanisms for downtime tracking and root-cause analysis (e.g., material shortage, operator delay, maintenance issues)**
- **Integrate user-friendly interfaces (mobile/tablet-based) for operators to update job status with minimal friction**
- **Explore the use of IoT sensors or manual inputs for capturing machine-level data**
- **Consider scalability across different factory sizes and adaptability to varying levels of digital maturity**
- **Evaluate cost-effectiveness, ease of deployment, and training requirements for workers**

EXPECTED SOLUTION

- **The final solution should demonstrate how a well-designed digital workflow system can:**
- **Reduce machine idle time**
- **Improve coordination between operators and supervisors**
- **Increase overall equipment effectiveness (OEE)**
- **Enhance productivity and throughput**
- **Enable data-driven decision-making**

Ultimately, the system should act as a digital backbone for shop-floor operations, helping manufacturing units transition toward smarter, more efficient, and scalable production systems.

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PS-ID: AX-05

TITLE: Smart Civic Issue Reporting & Resolution System.

PROBLEM STATEMENT

Urban areas face numerous daily issues such as potholes, garbage overflow, water leakage, broken streetlights, and public infrastructure damage. Citizens often struggle to report these problems effectively, and even after reporting, there is no transparency or tracking of resolution. This leads to delayed action, repeated complaints, and poor trust in civic authorities. There is a need for a centralized, transparent, and real-time system that enables citizens to report issues easily and ensures faster resolution with accountability.

EXPECTED SOLUTION

- Allow users to report issues with image, location, and description.
- Automatically categorize issues (road, water, electricity, waste, etc.).
- Provide real-time tracking of complaint status (pending, in-progress, resolved).
- Assign complaints to relevant authorities/departments.
- Send notifications to users on status updates.
- Implement priority system based on severity and number of reports.
- Public dashboard to show nearby issues and resolution progress.
- Feedback system after issue resolution.

Next Slide

PS-ID: AX-06

TITLE: Smart Internship & Skill Gap Analyzer.

PROBLEM STATEMENT

Students frequently apply for internships without a clear understanding of industry-required skills, leading to high rejection rates. There is a lack of intelligent systems that can analyze a student's profile, compare it with current market requirements, and guide them on how to improve. This results in poor preparation, mismatched applications, and missed opportunities.

EXPECTED SOLUTION

- **Extract structured data (skills, education, experience) from resumes using AI/NLP.**
- **Compare student profiles with real-time internship/job requirements.**
- **Identify missing skills, gaps, and areas of improvement.**
- **Generate a personalized skill development roadmap for users.**
- **Provide readiness scoring and detailed improvement insights.**

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PS-ID: AX-07

TITLE: Digital Platform for Custom Furniture

PROBLEM STATEMENT

In this challenge, you will design and develop a digital customization and sourcing platform that enables customers to create dimension-based metal furniture tailored to their specific spatial and functional needs. The platform should integrate intelligent design tools, automated sheet-metal nesting optimization, and a recycling-aware sourcing system to minimize material waste.

Students will:

- **Identify key customer requirements for customizable metal furniture across homes, offices, retail, and industrial settings**
- **Develop a dimension-based digital configuration system that translates user inputs into fabrication-ready designs**
- **Design an intelligent sheet-metal nesting and optimization engine to reduce scrap generation**
- **Propose a recycling loop that tracks, categorizes, and reuses sheet-metal offcuts effectively**
- **Consider cost optimization, manufacturability, sustainability metrics, and supply chain integration**
- **Prototype or simulate a platform that connects customers, designers, and fabricators in a closed-loop manufacturing ecosystem**

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PS-ID: AX-08

TITLE: Smart Tourist Safety Monitoring.

PROBLEM STATEMENT

Tourists often face safety risks such as entering unsafe zones, theft, or lack of immediate assistance in unfamiliar locations. Existing systems do not provide real-time monitoring or quick emergency response support, leading to increased vulnerability. There is a need for a smart system that ensures tourist safety through real-time alerts, secure identity verification, and rapid response mechanisms.

EXPECTED SOLUTION

- Implement AI-based real-time risk detection for unsafe situations.
- Enable geo-fencing alerts for restricted or high-risk areas.
- Develop secure identity verification (e.g., blockchain-based or digital ID).
- Provide instant emergency alerts with quick response support.
- Improve overall tourist safety, awareness, and trust levels.

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PS-ID: AX-09

TITLE: Modular Air Purification Platform.

PROBLEM STATEMENT

In this challenge, you will design and develop a modular air purification platform that can be configured for different use cases such as homes, offices, industrial spaces, healthcare facilities, or outdoor environments. The platform should allow interchangeable purification modules to be added, removed, or replaced based on the specific air quality requirements.

Students will:

- **Identify common air pollutants and requirements across different environments**
- **Design modular filtration or treatment units (e.g., particulate, gas, pathogen control)**
- **Develop a scalable airflow and enclosure design adaptable to multiple settings**
- **Consider energy efficiency, ease of maintenance, and user safety**
- **Prototype or simulate a configurable air purification system**

The final solution should demonstrate how a flexible platform can address diverse air quality challenges by adapting its modules, making air purification more efficient, cost-effective, and easier to maintain across different environments.

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PS-ID: AX-10

TITLE: AI-Powered Supply Chain Agent.

PROBLEM STATEMENT

Modern supply chains often rely on disconnected systems, leading to issues such as stock mismanagement, delayed deliveries, and lack of real-time visibility. These inefficiencies increase operational costs and reduce customer satisfaction. There is a need for an intelligent system that can integrate and automate supply chain processes, providing real-time insights and predictive capabilities to improve overall efficiency.

EXPECTED SOLUTION

- **Develop AI agents to monitor inventory levels and logistics operations.**
- **Implement real-time stock tracking and automatic optimization.**
- **Automate end-to-end workflows from order placement to delivery and payment.**
- **Provide predictive demand forecasting using historical data and trends.**

Enhance supply chain visibility through dashboards and analytics.

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PS-ID: AX-11

TITLE: Smart Clinic & Hospital Queue, Token & Bed Management System.

PROBLEM STATEMENT

Manual hospital systems cause overcrowding, long wait times, and poor queue handling. Patients lack real-time updates on their turn and bed availability, especially in emergencies. A smart system is needed to manage queues, tokens, and beds efficiently.

EXPECTED SOLUTION

- Digital token & queue management system
- Live queue tracking with waiting time
- SMS/app alerts for token updates
- Real-time bed availability (ICU, general, emergency)
- Appointment booking & auto-rescheduling
- Reduce waiting time & overcrowding
- Admin dashboard for management
- Reports & analytics

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PS-ID: AX-12

TITLE: Open Innovation: Choose Your Own Problem & Build a Solution.

PROBLEM STATEMENT

In today's world, numerous real-life challenges exist across domains such as healthcare, environment, education, transportation, and public services. However, many of these problems remain unsolved due to lack of innovative and scalable solutions.
This problem statement encourages participants to independently identify any real-world problem of their choice and develop a creative, practical, and impactful solution. It provides complete flexibility to explore ideas, technologies, and domains based on individual interest and innovation.

EXPECTED SOLUTION

- Identify and clearly define a real-world problem of your choice.
- Analyze the problem and its impact on users or society.
- Design an innovative and feasible solution.
- Develop a prototype (web/app/system) demonstrating key features.
- Ensure the solution is scalable and applicable in real-life scenarios.
- Use relevant technologies (AI, ML, IoT, Web, Cloud, etc.) if required.
- Present measurable outcomes or expected impact of the solution.

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PS-ID: AX-13

TITLE: Smart Study Planner with Reminder System.

PROBLEM STATEMENT

Students often fail to manage their study schedules effectively due to lack of planning, poor time management, and absence of structured guidance. This leads to missed deadlines, incomplete syllabus coverage, and increased stress during exams.

EXPECTED SOLUTION

- **Create a personalized study timetable based on user preferences and availability**
- **Provide task reminders and real-time notifications for upcoming deadlines**
- **Implement a progress tracking system to monitor completed and pending tasks**
- **Enable priority-based task scheduling (High, Medium, Low) for better focus**
- **Display daily and weekly performance reports with productivity insights**
- **Allow users to add, edit, and manage study tasks and notes**
- **Include a simple and user-friendly dashboard for better experience**

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PS-ID: AX-14

TITLE: Farmer Direct Market Connect Platform.

PROBLEM STATEMENT

Farmers often receive low prices for their produce due to the involvement of middlemen and lack direct access to buyers. This results in reduced profits for farmers and higher prices for consumers, along with inefficiencies in the agricultural supply chain.

EXPECTED SOLUTION

- Enable farmers to list and showcase their products directly on the platform
- Allow buyers to connect and purchase directly from farmers without intermediaries
- Provide a price comparison feature to ensure fair and transparent pricing
- Implement an order management and communication system between farmers and buyers
- Include basic logistics coordination for delivery and transportation support
- Offer a simple and user-friendly interface for easy access in rural areas
- Support secure transactions and order tracking

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PS-ID: AX-15

TITLE: Gamified Coding Learning & Challenge Platform..

PROBLEM STATEMENT

Many students find coding difficult and boring due to traditional learning methods. Existing platforms focus on theory or standard problem-solving but fail to provide an engaging, game like environment that motivates continuous learning. There is a need for an interactive platform where users can learn coding concepts through gameplay, challenges, and real-time competition, making learning fun, addictive, and effective. .

EXPECTED SOLUTION

- Create a platform where users solve coding problems as game levels.
- Introduce points, badges, and leaderboard system for motivation.
- Provide story-based missions (e.g., unlock levels by solving problems).
- Include real-time coding battles between users.
- Offer hints and learning resources within the game.
- Track user progress and skill level.
- Support multiple programming languages.
- Add daily challenges and streak system for engagement

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Thank You!

We explored multiple real-world problem statements across different domains, aiming to build smart, impactful, and innovative solutions for society.

Each idea focuses on solving practical challenges using technology and creativity.

Best of Luck for Your Innovation Journey

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“Innovating Today for a Smarter Tomorrow”

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