SOFTWARE TRACK

SMART EDUCATION DOMAIN (5 Problems)

1. Context-Aware Student Assistance System

Problem Statement:
Most academic chatbots are unable to remember past conversations, leading to repetitive interactions and poor student experience.

Problem Description:
Students frequently interact with college chatbots to ask about subjects, deadlines, exams, or administrative procedures. However, these systems usually treat each query as independent, forgetting earlier context such as the student's department, semester, previous doubts, or ongoing tasks. This results in fragmented conversations, forcing students to repeat information and reducing trust in the system. A more intelligent student assistant must be able to maintain long-term conversational memory and provide continuity across multiple interactions.

2. AI-Based Plagiarism Detection Platform

Problem Statement:
Traditional plagiarism detection systems fail to identify paraphrased or semantically copied content.

Problem Description:
With easy access to rewriting tools and AI, students can change sentence structures while keeping the original meaning, making basic text-matching plagiarism tools ineffective. This creates serious academic integrity issues, especially in assignments, research papers, and reports. Educational institutions need a system that goes beyond keyword matching and can identify similarity in meaning, writing style, and conceptual overlap between documents.

3. Smart Online Exam Monitoring System

Problem Statement:
Online examinations lack reliable mechanisms to ensure fairness and prevent malpractice.

Problem Description:
As institutions move towards online exams, it becomes difficult to verify whether students are following rules. Simple login-based systems cannot detect if a student switches tabs, uses unauthorized devices, or receives help from others. This threatens the credibility of online assessments. There is a need for an intelligent monitoring framework that can continuously observe student activity and identify suspicious patterns during exams.

4. Real-Time Collaborative Study Platform

Problem Statement:
Students lack effective tools for real-time collaboration during group study and project work.

Problem Description:
Group assignments, research work, and exam preparation often require students to collaborate on the same notes or documents. However, most existing tools are either slow, fragmented, or not designed specifically for academic workflows. Students struggle with version conflicts, delays in updates, and lack of coordination when working together remotely. A system is needed that allows multiple users to view, edit, and organize study material simultaneously in a seamless manner.

5. Smart Placement Readiness Tracking System

Problem Statement:
Students preparing for placements do not have a unified system to track their readiness and progress.

Problem Description:
Placement preparation involves coding practice, aptitude tests, soft skills, resume building, and mock interviews. Currently, students use multiple platforms to manage these activities, making it difficult to understand overall readiness. Without a centralized system, students fail to identify weak areas and lose track of their improvement. A structured platform is required to consolidate preparation data and provide meaningful insights

HEALTH & WELLNESS DOMAIN (5 Problems)

6. Mental Wellness Self-Assessment Platform

Problem Statement:
Students lack awareness and tools to monitor their mental well-being.

Problem Description:
Academic pressure, social stress, and uncertainty about the future negatively affect students' mental health. Many students are unaware of their stress levels until serious issues arise. There is no simple digital system that allows them to assess their mental condition regularly and receive meaningful feedback.

7. Student Burnout Detection System

Problem Statement:
Student burnout often goes unnoticed until it leads to academic failure or mental health crises.

Problem Description:
Continuous academic workload, competition, and social expectations create burnout, but institutions lack tools to detect it early. Without systematic tracking of behavior, performance, and stress indicators, intervention comes too late.

8. Academic Stress Analytics Platform

Problem Statement:
Institutions do not have structured data to understand student stress patterns.

Problem Description:
Stress varies across semesters, exams, and student groups, but this data is never analyzed. Without visibility into stress trends, universities cannot design effective support systems.

9. Digital Counseling Support System

Problem Statement:
Students struggle to access timely mental health support.

Problem Description:
Counseling centers are overloaded, and students hesitate to seek help. A digital channel for structured mental-health guidance is required.

10. Emotional Well-Being Tracking System

Problem Statement:
Students do not have tools to track emotional health over time.

Problem Description:
Mood swings, anxiety, and emotional fatigue accumulate unnoticed. There is no system that allows students to log and analyze emotional trends.

CYBERSECURITY DOMAIN

11. Secure File Sharing Platform

Problem Statement:
Sensitive files shared online are vulnerable to unauthorized access, misuse, and data leakage.

Problem Description:
Students, organizations, and institutions frequently share important documents such as project files, certificates, academic records, and confidential reports through cloud drives, email attachments, or public links. These methods provide little control over who accesses the files, how long the access remains valid, or whether the files are copied or forwarded further. Once a file link is shared, it can easily be misused, even after the original purpose is fulfilled. This creates serious risks related to privacy, data theft, and compliance. There is a need for a secure digital system that ensures controlled, trackable, and protected file sharing.

12. Data Leak Prevention System

Problem Statement:
Organizations struggle to detect accidental or malicious data leaks.

Problem Description:
Modern organizations handle large volumes of sensitive data such as personal records, academic information, financial details, and internal documents. This data often leaves organizational systems

through emails, file downloads, cloud storage links, or external devices. In many cases, these transfers are not tracked or controlled, making it impossible to detect when confidential information is leaked either accidentally or intentionally. A single data breach can lead to financial loss, reputational damage, and legal consequences. There is a need for a system that continuously monitors data movement, identifies risky behaviour, and provides visibility into how sensitive information is being accessed and shared.

13. Phishing Attack Detection System

Problem Statement:
Users frequently fall victim to phishing emails and fake websites.

Problem Description:
Phishing attacks have become more sophisticated, using realistic emails, messages, and websites that closely resemble trusted organizations. These attacks trick users into revealing passwords, bank details, or personal information. Many users are unable to distinguish between legitimate and fraudulent communication, especially when the messages appear urgent or official. Traditional spam filters are often ineffective against new and cleverly designed phishing campaigns. A smarter detection system is required to analyse communication patterns, content, and links in order to protect users from cyber fraud.

14. Identity Access Management Platform

Problem Statement:
Unauthorized access to systems is increasing.

Problem Description:
Organizations rely on multiple digital systems for storing data and running operations, but many of them use weak or poorly managed authentication methods. Users often reuse passwords, share credentials, or forget to log out from shared devices. This allows attackers or unauthorized individuals to gain access to sensitive systems. Without proper control over who can access what, organizations face high risks of data breaches and misuse. A structured identity and access management platform is required to ensure that users can only access resources they are authorized to use.

15. Secure Login Monitoring System

Problem Statement:
Suspicious login activities often go unnoticed.

Problem Description:
Cyber attacks frequently begin with compromised login credentials. Attackers attempt multiple logins from different locations, devices, or networks until they succeed. However, many systems do not actively monitor or analyse these login patterns. As a result, abnormal behaviour such as repeated failed attempts,

sudden location changes, or logins from unfamiliar devices is not detected in time. A monitoring system is needed to continuously track login activity and flag potentially dangerous behavior before a breach occurs.

FINTECH DOMAIN

16. Smart Fraud Detection System

Problem Statement:
Traditional fraud detection methods are unable to detect evolving fraudulent patterns.

Problem Description:
Online payments, digital banking, and e-commerce have increased financial convenience, but they have also created new opportunities for fraud. Criminals constantly change their techniques to bypass rule-based detection systems. These systems are usually based on fixed rules and thresholds, which quickly become outdated. As a result, many fraudulent transactions go undetected while genuine users may get blocked. A more intelligent system is required to analyse transaction behaviour and detect unusual or suspicious activity.

17. Expense Pattern Analysis Platform

Problem Statement:
Users do not understand their spending behaviour.

Problem Description:
People make dozens of financial transactions every day using cash, cards, and digital wallets. However, most users do not have a clear view of where their money goes. Expenses are often scattered across multiple platforms, making it difficult to track spending patterns. Without proper insights, users overspend, fail to save, and struggle with budgeting. A system is needed that can collect expense data, categorize spending, and provide meaningful analysis of financial habits.

18. Digital Wallet Security System

Problem Statement:
Online wallets face increasing security threats.

Problem Description:
Digital wallets store sensitive information such as payment details, transaction history, and personal data. These platforms are frequent targets for hackers, malware, and account takeover attacks. Unauthorized access can lead to financial theft and loss of user trust. Many wallet systems lack strong monitoring and risk detection mechanisms. A more secure environment is required to protect user accounts and transactions from fraudulent activities.

19. Loan Risk Assessment Platform

Problem Statement:

Financial institutions struggle to accurately assess borrower risk.

Problem Description:

Banks and lending platforms must decide whether a borrower is likely to repay a loan. However, many decisions are still based on limited data or outdated credit models. This leads to poor loan approvals, high default rates, and financial losses. At the same time, genuine borrowers may be rejected unfairly. A data-driven risk assessment system is needed to analyze borrower behavior, financial history, and patterns to make better lending decisions.

20. Investment Behavior Analytics

Problem Statement:

Users make uninformed investment decisions.

Problem Description:

Many individuals invest in stocks, mutual funds, or digital assets without fully understanding their risk profile or financial goals. Decisions are often driven by trends, social media, or emotions rather than proper analysis. This leads to losses and financial instability. There is a need for a system that analyzes investment behavior, tracks decision patterns, and provides insights into how users manage their investments.

HARDWARE / HYBRID TRACK

1. AgroVision – Smart Crop Health Surveillance System

Domain: Smart Agriculture

Problem Statement:
Farmers are unable to continuously monitor crop health across large farming areas.

Problem Description:
Crop diseases, pest attacks, and nutrient deficiencies develop gradually, but farmers often notice them only after visible damage has occurred. Manual inspection is time-consuming, subjective, and impractical for large farms. Environmental factors such as soil moisture, temperature, and humidity also influence crop health, but these are rarely tracked in real time. Without continuous field-level monitoring, early warning signs are missed, leading to reduced yield, increased pesticide use, and financial loss. There is a need for a system that provides ongoing visibility into crop and field conditions.

2. AquaTrack – Smart Water Usage and Tank Monitoring System

Domain: Environment & Sustainability

Problem Statement:
Water wastage occurs due to lack of real-time monitoring of water storage and usage.

Problem Description:
In residential campuses, hostels, and agricultural facilities, water tanks and pipelines are typically managed manually or through fixed schedules. This results in frequent overflow, unnoticed leaks, and water shortages. Since users have no live visibility of water levels or consumption, wastage remains undetected for long periods. With increasing water scarcity, inefficient water management leads to serious environmental and operational issues. A system is required to continuously track water levels and usage patterns.

3. Smart-Grid Watch – Energy Consumption Monitoring System

Domain: Smart Energy

Problem Statement:
Electricity is wasted due to lack of real-time monitoring of power usage.

Problem Description:
Buildings such as colleges, offices, and hostels consume large amounts of electricity, but most of this

usage is not monitored at a detailed level. Lights, fans, air conditioners, and lab equipment remain switched on even when not in use. Without real-time data, administrators cannot identify which areas are wasting energy. This results in high electricity bills, increased carbon footprint, and inefficient resource usage. A system is required to continuously measure and visualize energy consumption.

4. UrbanPark – Smart Parking Availability System

Domain: Smart City

Problem Statement:
Drivers waste time and fuel searching for available parking spaces.

Problem Description:
In busy locations such as college campuses, malls, and commercial zones, parking spaces may be available, but drivers have no way to know where they are. This leads to unnecessary driving, traffic congestion, and frustration. Manual parking management systems do not provide real-time updates and are prone to errors. As urban areas become more crowded, the lack of accurate parking information creates inefficiency and pollution. A system is needed to continuously track and display parking availability.

5. SafeRide – Smart Accident and Emergency Detection System

Domain: Healthcare & Public Safety

Problem Statement:
Accidents often go unreported or receive delayed emergency response.

Problem Description:
Road accidents, falls, and medical emergencies can be life-threatening if help does not arrive quickly. In many cases, victims are unable to call for help, and bystanders may not act immediately. Emergency services rely on manual reporting, which causes delays. Without automatic detection of unusual movements, impacts, or health signals, critical time is lost. A system is needed to detect emergencies in real time and improve response efficiency.