ANURAG UNIVERSITY

SCHOOL OF ENGINEERING

DEPARTMENT OF INFORMATION AND TECHNOLOGY

HACKATTACK

IoT Challenge Board

From Vision to Reality

1. HEALTHCARE

A. Smart Hospital Asset Management

Problem: Inefficiencies in tracking and managing critical medical equipment result in delays, increased costs, and potential impacts on patient care.

Solution: Implement IoT-enabled sensors (e.g., RFID, Bluetooth) to monitor the location, status, and maintenance schedules of medical equipment.

Impact: Enhances resource availability, reduces costs, prevents loss, ensures timely maintenance, and improves patient outcomes.

B. Monitoring Sleep Patterns for Improved Health

Problem: Sleep disorders affect overall health but are often underdiagnosed due to limited tracking and insights.

Solution: Use IoT-based wearable or non-wearable devices to monitor sleep metrics like heart rate, respiratory rate, and movement while analyzing data for abnormalities.

Impact: Provides real-time insights, enabling early intervention, personalized treatment, and

2. DIGITAL EDUCATION

A. Tracking Student Movement for Safety

Problem: Ensuring student safety on large campuses is challenging, especially during emergencies or unauthorized movements.

Solution: Use IoT-enabled badges or wearables (e.g., RFID, GPS) to monitor student locations in real-time and alert staff during emergencies.

Impact: Enhances security, improves emergency response, and provides peace of mind to parents and staff.

B. Data-Driven Resource Allocation

Problem : Schools struggle with inefficient allocation of educational resources due to a lack of data on student engagement and performance.

Solution: IoT-enabled devices track usage of textbooks, digital tools, and classroom activities, providing actionable insights.

Impact: Optimizes resource allocation, enhances personalized learning, and improves student outcomes.

3. FINTECH

A. Real-Time Transaction Monitoring

Problem: Security concerns and fraud risks in touchless IoT-enabled payment systems.

Solution: Use smart POS systems, RFID sensors, and real-time analytics to monitor transactions and detect suspicious activity.

Impact: Ensures secure transactions, reduces fraud, streamlines inventory management, and improves customer experiences.

B. Personalized Banking Services

Problem: Lack of tailored banking experiences leads to decreased customer satisfaction and engagement.

Solution: Implement AI-driven IoT solutions to offer personalized financial products and services based on customer data.

Impact: Enhances customer loyalty, satisfaction, and retention by providing bespoke financial solutions.

4. SMART CITY PLANNING

A. Smart Energy Management

Problem: Rising energy demands and costs require better monitoring and optimization.

Solution: Use IoT sensors and smart meters to track energy usage in real-time and automate energy-saving actions.

Impact: Reduces energy costs, enhances efficiency, and promotes sustainable practices.

B. Smart Waste Management

Problem: Inefficient waste collection leads to pollution, health risks, and unnecessary operational costs.

Solution: Install IoT sensors in bins to monitor fill levels and optimize collection routes.

Impact: Improves city cleanliness, reduces waste collection costs, and promotes sustainability.

5. AGRI-INNOVATE

A. IoT-Enabled Smart Agriculture

Problem: Farmers face challenges managing resources effectively due to unpredictable environmental conditions.

Solution: Deploy IoT sensors for real-time monitoring of soil moisture, temperature, and weather conditions to optimize resource usage.

Impact: Increases crop yields, reduces resource waste, and improves sustainability.

B. Real-Time Agricultural Monitoring

Problem: Lack of real-time insights limits the ability to address crop issues promptly.

Solution: IoT sensors collect data on crop health and environmental conditions, enabling data-driven decisions for irrigation and fertilization.

Impact: Enhances productivity, reduces costs, and supports efficient farming practices.

6. IDEA FLEX

A. IoT-Enhanced Traffic Management

Problem: Urban traffic congestion causes delays, frustration, and increased pollution.

Solution: Install IoT sensors at intersections to optimize traffic signal timings and provide real-time updates to drivers.

Impact: Reduces commute times, lowers emissions, and enhances urban sustainability.

B. Scalable Business Solutions

Problem: Businesses struggle to adapt to changing market demands and inefficiencies in inventory management.

Solution: Implement IoT-integrated systems with Idea Flex to monitor inventory and predict demand dynamically.

Impact: Improves operational efficiency, reduces costs, and enhances customer satisfaction.