

**SONA COLLEGE OF TECHNOLOGY**  
**DEPARTMENT OF INFORMATION TECHNOLOGY**  
**PORT'25**

**IDEA INSIGHTS (Problem Statements)**

1. **THEME:** "Enhancing Security and Transparency with Blockchain Technology" (Blockchain Technology)

**PROBLEM STATEMENT:**

**Scenario:** Imagine a world where election results cannot be tampered with, and every vote is counted securely. Or think about a supply chain where you can track every product from its origin to your hands, ensuring authenticity. However, traditional systems lack security and transparency, leading to fraud and inefficiencies.

**Problem Statement:** How can blockchain technology be used to create secure and transparent voting systems or improve supply chain traceability to prevent fraud and ensure trust?

2. **THEME:** "Revolutionizing Connectivity with IoT and Smart Sensors" (IoT and Smart Sensors)

**PROBLEM STATEMENT:**

**Scenario:** You wake up in a smart home where lights, temperature, and security adjust automatically based on your habits. In a smart city, traffic lights change dynamically to reduce congestion. In healthcare, wearable devices monitor a patient's health and alert doctors in emergencies. But without efficient IoT systems, these technologies cannot function optimally.

**Problem Statement:** How can IoT and smart sensors be utilized to build smart cities, enhance healthcare monitoring, and improve quality of life through automation and real-time data collection?

3. **THEME:** "Strengthening Digital Security in an Evolving Cyber Landscape" (Cyber Technology)

**PROBLEM STATEMENT:**

**Scenario:** You receive an email from your bank asking for personal details, but it's a scam. A hospital's systems get hacked, putting patient records at risk. A factory's smart machines are remotely taken over by hackers. Cyber threats are increasing, and traditional security measures often fail to detect them in time.

**Problem Statement:** How can AI-powered cybersecurity solutions be developed to detect and prevent cyberattacks, especially in IoT-connected devices and critical infrastructure?

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4. **THEME:** "AI and Machine Learning: Shaping the Future of Automation"

**PROBLEM STATEMENT:**

**Scenario:** A student struggles with learning because traditional education doesn't cater to their pace. Meanwhile, a factory loses millions because machines break down unexpectedly. AI can personalize learning and predict machine failures before they happen, but many industries still rely on outdated methods.

**Problem Statement:** How can AI and machine learning be used to personalize education and predict equipment failures in industries, improving efficiency and reducing losses?

**5. THEME: Leveraging Data for Environmental Sustainability" (Environmental Informatics)**

**PROBLEM STATEMENT:**

**Scenario:** Imagine a world where deforestation, water pollution, and climate change can be tracked in real-time. Satellites and drones can monitor forests, detect illegal mining, and measure air pollution, helping governments take action before disasters happen. However, many countries lack proper data collection and analysis tools, leading to delayed responses to environmental threats.

**Problem Statement:** How can remote sensing and GIS technologies be effectively used to monitor environmental changes, detect pollution, and provide real-time data for better decision-making in environmental protection