IDEATHON

As part of **Spark-O-Fest 1.0 – Idea 2 Impact**, Saraswati Dental College & Hospital proudly presents the **Ideathon Competition**, a dynamic platform designed to inspire innovation and creative problem-solving among students and young professionals. The Ideathon aims to encourage participants to identify **real-world challenges in healthcare, technology, and society** and develop **innovative, practical, and scalable solutions**. Participants will work individually or in teams to present impactful ideas that have the potential to transform concepts into implementable solutions.

Through this competition, participants will:

- Showcase their **innovative thinking and creativity**
- Develop **problem-solving and entrepreneurial skills**
- Receive insights and feedback from **experts, academicians, and industry leaders**
- Explore opportunities to **transform ideas into real-world solutions or startups**

The following problem-based scenarios are proposed as themes for the Ideathon competition. Participants are required to choose a topic and present their innovative ideas and solutions.

1. Bridging the Technology Gap in Urban and Rural Healthcare

Problem: Rural healthcare centers often lack access to advanced diagnostic tools, digital health systems, and specialist consultation available in urban hospitals.
Concept: A technology-enabled telehealth and diagnostic support platform connecting rural health centers with urban hospitals.
Core engineering scope:

- Telemedicine platform with low-bandwidth support
- Digital health record integration
- Remote diagnostic device connectivity
- Doctor–patient consultation interface

Why powerful:

- Large rural population dependent on primary health centers
- Government focus on digital health initiatives
- Scalable across districts and state

2. Making Cities More Accessible for People with Disabilities

Problem: Cities often lack accessible sidewalks, transport, and navigation tools for people with disabilities.
Concept: A smart accessibility platform enabling accessible route mapping and assistive navigation.
Core engineering scope:

- Accessibility GIS mapping
- Mobile navigation app
- Infrastructure reporting system
- Public transport integration

Why powerful:

- Supports inclusive urban development
- Aligned with smart city initiatives
- High social impact

3. End-of-Life Solutions for Sharp Medical Waste

Problem: Improper disposal of sharps like needles creates infection and environmental risks.
Concept: A decentralized system that safely sterilizes and neutralizes sharps waste.
Core engineering scope:

- Portable sterilization device
- Smart waste segregation containers
- Waste tracking system
- Safe destruction mechanism

Why powerful:

- Strong hospital demand
- Improves infection control
- Aligned with biomedical waste rules

4. Reducing Leftover Food at Household and Institutional Levels

Problem: Large quantities of food are wasted in homes, hostels, hospitals, and events.
Concept: A smart system for food planning, surplus tracking, and redistribution.
Core engineering scope:

- Food demand prediction
- Surplus food tracking
- Donation logistics platform
- Food safety monitoring

Why powerful:
- Addresses food insecurity
- Supports NGOs and food banks
- Reduces environmental waste

5. Sustainable Employment for Rural Youth

Problem: Limited rural job opportunities lead to migration to cities.
Concept: A platform enabling micro-enterprises using local resources and skills.
Core engineering scope:
- Rural skill marketplace
- Resource mapping tools
- Micro-enterprise dashboard
- Digital training modules

Why powerful:
- Supports rural economy
- Reduces migration
- Encourages entrepreneurship

6. Inclusive Employment for Transgender & LGBTQ+ Communities

Problem: Transgender and LGBTQ+ individuals face barriers in accessing stable employment.
Concept: An inclusive employment platform linking talent with inclusive organizations.
Core engineering scope:
- Inclusive job portal
- Skill training modules
- Employer inclusion toolkit
- Mentoring system

Why powerful:
- Promotes workplace diversity
- Supports ESG goals
- Dignified employment

7. Smart Flood Early Warning & Micro-Alert System

Problem:
Eastern UP districts face recurring floods with delayed local alerts.

Concept:
A low-cost river/pond water-level sensor network that sends hyperlocal SMS/WhatsApp alerts to villages.

Core engineering scope

- Ultrasonic or pressure water-level sensors
- LoRa/GSM communication
- Edge alert logic
- Village alert dashboard

Why powerful in UP

- Recurring floods in many districts
- Strong government interest
- Clear pilot sites

8. AI-Powered Crop Disease Detection (Low-Bandwidth)

Problem:
Farmers often detect crop diseases too late, leading to major yield losses.

Concept:
An offline-capable mobile application that identifies crop diseases from images even in low connectivity areas.

Core engineering scope

- Lightweight computer vision model
- Offline inference system
- Multilingual farmer interface
- Crop advisory engine

Why powerful

- Huge agriculture ecosystem in UP
- Immediate impact for farmers
- Strong agri-tech startup potential

9. Smart Transformer Failure Prediction for DISCOMs

Problem:
Frequent transformer failures lead to local power outages and costly repairs.

Concept:
An IoT-based predictive monitoring device that detects early warning signs of transformer failure.

Core engineering scope

- Temperature and load sensors
- Edge anomaly detection
- Utility monitoring dashboard
- SMS alert system

Why powerful

- Direct pain point for electricity utilities
- Government adoption potential
- High technical credibility

10. Solar-Powered Cold Storage Micro Units

Problem:
Farmers lose significant income due to post-harvest spoilage of fruits and vegetables.

Concept:
Portable solar-powered cold storage units for village-level produce aggregation.

Core engineering scope

- Thermal storage design
- Solar optimization
- Battery management
- Remote monitoring

11. Smart Public Toilet Cleanliness Monitoring

Problem:
Public toilets often become unusable due to poor maintenance.

Concept:
IoT-based monitoring system that tracks usage, odor levels, and cleaning frequency.

Core engineering scope

- Ammonia / odor sensors
- Footfall counters
- Cleaning alerts
- Municipal dashboard

12. AI Traffic Violation Detection for Cities

Problem:
Manual traffic enforcement is inefficient and limited.

Concept:
Edge-AI camera system that automatically detects traffic violations.

Core engineering scope

- Computer vision models
- Camera integration
- Evidence capture system
- Police monitoring dashboard

13. Low-Cost Air Quality Monitoring Network

Problem:
Most cities lack hyperlocal air pollution data.

Concept:
A dense network of affordable air-quality monitoring sensors.

Core engineering scope

- PM sensor calibration
- IoT networking
- Data visualization dashboard
- Power optimization

14. Smart Attendance & Dropout Warning for Schools

Problem:
Student dropouts in government schools are detected too late.

Concept:
AI-enabled attendance tracking with dropout risk prediction.

Core engineering scope

- Face recognition / RFID attendance
- Risk scoring algorithm
- Teacher dashboard
- Parent alerts

15. Portable Water Quality Testing Device

Problem:
Rural communities often lack quick water quality testing tools.

Concept:
A handheld device that tests water and gives simple safety indicators.

Core engineering scope

- Multi-parameter sensors
- Calibration algorithms
- Mobile connectivity
- Rugged hardware design

16. Smart Queue Management for Government Hospitals

Problem:
Long queues and chaotic patient flow in OPDs.

Concept:
Digital token and patient flow prediction system.

Core engineering scope

- Token kiosks
- Queue tracking mobile app
- Load prediction algorithms
- Patient SMS alerts