



AAVARTAN'25-26



VIGYAN

DEPARTMENT OF

COMPUTER SCIENCE, INFORMATION TECHNOLOGY, MCA

PROBLEM STATEMENTS

MCSIT01: Blockchain-Enabled Tourist Safety & Emergency Response System

Develop a real-time tourist safety platform that monitors movement within designated geofenced areas, detects entry into unsafe or restricted zones and triggers a secure emergency response workflow. The system should ensure identity-verified alerts and maintain tamperproof event records using a permissioned blockchain to support accountability and post-incident audits.

MCSIT02: Community Health Early-Warning System for Water-Borne Disease Risk

Develop a data-driven early-warning platform that predicts water-borne disease risk at the community level by integrating clinical case information, real-time water-quality sensor data and weather patterns. The system should identify emerging hotspots, visualize risk trends and notify public-health authorities early enough to enable preventive action and resource allocation.

MCSIT03: Aerial & Satellite Monitoring for Illegal Construction and Waste Dumping

Develop an image-analysis system that uses multi-temporal aerial and satellite imagery to detect unauthorized land-use changes such as illegal construction, waste dumping, or erosion. The platform should align imagery from different time periods, highlight areas of concern and generate geo-referenced evidence summaries suitable for inspection and enforcement workflows.

MCSIT04: AI-Enabled Telemedicine & Remote Triage Platform

Develop a secure telemedicine and remote triage platform that collects patient symptoms and vital data, analyzes urgency using AI-based decision support and facilitates doctor-patient interaction through secure virtual consultations. The system should ensure privacy-preserving access control, generate authenticated consultation records and support continuity of care in remote or underserved regions.

MCSIT05: Coordinated Drone Swarm for Disaster Assessment

Develop an autonomous multi-drone swarm system either physically deployed or realistically simulated that can collaboratively survey disaster-affected areas, detect hazards and provide real-time situational awareness to responders. The solution should enable coordinated coverage, onboard hazard identification and unified visualization of geospatial intelligence to support faster and safer emergency decision-making.

MCSIT06: Real-Time Deepfake & Impersonation Detection for Secure Digital Interactions

Develop an AI-based real-time detection system capable of identifying manipulated or synthetic audio video streams during high-risk remote interactions such as digital identity verification or financial authorization. The solution should generate suspicion scores with human-interpretable indicators, capture evidence for compliance audits and support analyst review to prevent fraud and impersonation attacks.

MCSIT07: Wearable Health Patch for Early Detection of Stroke-Related Signals

Develop a wearable health-monitoring patch and accompanying analytics system that continuously captures critical biosignals, identifies early warning patterns related to stroke risk and delivers secure alerts for timely clinical intervention. The solution should support long-term monitoring, provide interpretable insights to healthcare providers and emphasize patient safety and data privacy.

MCSIT08: Predictive Crime Hotspot Analytics with Fairness Auditing

Develop a crime forecasting platform that identifies high-risk areas based on historical incident data, mobility insights and socio-environmental factors. The system must incorporate fairness auditing to detect and mitigate potential biases in predictions, ensuring responsible and equitable deployment for public-safety decision-making.

MCSIT09: Privacy-First Passive Mental Well-Being Companion

Develop an AI-based mental well-being companion that operates entirely on-device to protect user privacy while passively monitoring behavioural indicators such as activity levels, sleep patterns and healthy device-usage habits. The system should detect sustained negative trends, provide timely micro-interventions and enable escalation to trusted contacts when necessary, all with clear consent and transparency for users.

MCSIT10: Real-Time Digital Payment Fraud Detection with Adaptive Scoring

Develop a real-time fraud-detection system for digital payments that evaluates UPI, card and wallet transactions using a hybrid machine-learning approach. The solution should combine supervised classification with anomaly detection, provide interpretable risk indicators and dynamically adapt response actions to minimize financial loss while preserving user convenience.

MCSIT11: Cloud Traffic Anomaly & DDoS Detection and Mitigation System

Develop a cloud-native security system that continuously monitors network traffic, detects abnormal behaviour and distributed denial-of-service (DDoS) attack patterns and initiates selective automated mitigation to maintain service availability. The solution should preserve detailed forensic evidence and enable security teams to analyze, classify and respond to ongoing or historical incidents.

MCSIT12: Privacy-Preserving Mobile Road & Infrastructure Health Reporter

Develop a privacy-focused mobile sensing system that identifies road and public-infrastructure defects such as potholes, cracks, debris, drainage blockages, or unauthorized posters using smartphone sensors and on-device intelligence. The solution must minimize personal data exposure while generating verifiable and geotagged incident reports that help authorities prioritize and respond to maintenance needs.