

SCMS SCHOOL OF ENGINEERING & TECHNOLOGY, KARUKUTTY

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING , BATCH 2021-25 CSE-1

CSD416 Project Phase II

SL NO	TITLE OF THE PROJECT	CATEGORY	RELEVANT POS & PSOs	SDG(s)	JUSTIFICATION FOR SDG MAPPING
1	Drunk Driving Detection using Deep Learning Models.	AI / Machine Learning	PO1, PO2, PO3, PO4, PO5, PO6, PO9, PO11; PSO1, PSO2, PSO3	SDG 3 – Good Health and Well-being; SDG 11 – Sustainable Cities and Communities	The system uses deep learning to detect drunk-driving indicators, supporting safer transport and helping reduce road-traffic injuries and deaths under SDG 3. Its application to road safety and safer urban mobility also supports SDG 11.
2	Ecofuturistic Intelligent Waste Management using IoT	IoT / Hardware	PO1, PO2, PO3, PO4, PO5, PO6, PO8, PO10, PO11; PSO1, PSO2, PSO3	SDG 11 – Sustainable Cities and Communities; SDG 12 – Responsible Consumption and Production; SDG 9 – Industry, Innovation and Infrastructure	IoT-based monitoring and intelligent waste handling can improve municipal waste-management efficiency, supporting sustainable communities under SDG 11. Better segregation, collection and resource use support SDG 12, while the digital infrastructure and automation aspect supports SDG 9.
3	Sonic Stick: IOT -Enhanced Deep Learning walking Stick for the Visually Impaired	IoT / Hardware	PO1, PO2, PO3, PO4, PO5, PO6, PO8, PO9, PO11; PSO1, PSO2, PSO3	SDG 3 – Good Health and Well-being; SDG 10 – Reduced Inequalities	The smart walking stick is designed as an assistive technology for visually impaired users, supporting safer mobility and well-being under SDG 3. Improved independent mobility and accessibility contribute to inclusion and reduced inequalities under SDG 10.
4	Digital Forensic Based Detection of Cyber attacks	IoT / Hardware	PO1, PO2, PO4, PO5, PO6, PO7, PO8, PO9, PO11; PSO1, PSO2, PSO3	SDG 9 – Industry, Innovation and Infrastructure; SDG 16 – Peace, Justice and Strong Institutions	Digital-forensic techniques for identifying cyber attacks strengthen secure digital infrastructure and technological capability, supporting SDG 9. Detection and investigation of cyber incidents also contribute to accountable, secure and resilient institutions, consistent with SDG 16.
5	Automated Detection of Diabetic Retinopathy using Machine Learning and Deep Learning Models.	AI / Machine Learning	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO9, PO11; PSO1, PSO2, PSO3	SDG 3 – Good Health and Well-being; SDG 9 – Industry, Innovation and Infrastructure	Automated diabetic-retinopathy screening can support earlier identification of a serious eye complication, contributing to health and well-being under SDG 3. Applying machine learning and deep learning to medical screening also demonstrates technology-enabled healthcare innovation under SDG 9.
6	NurseMate : Smart Chatbot for Efficient Healthcare Service Delivery using NLP	AI / NLP	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO9, PO11; PSO1, PSO2, PSO3	SDG 3 – Good Health and Well-being; SDG 9 – Industry, Innovation and Infrastructure; SDG 10 – Reduced Inequalities	An NLP healthcare chatbot can improve access to information and service support, contributing to SDG 3. Its use of AI and digital service delivery supports SDG 9, while accessible automated assistance can help reduce barriers to healthcare information, supporting SDG 10.

7	Pothole Detection Using deep Learning Analysis of Road Images	AI / Computer Vision	PO1, PO2, PO3, PO4, PO5, PO6, PO8, PO9, PO10, PO11; PSO1, PSO2, PSO3	SDG 11 – Sustainable Cities and Communities; SDG 9 – Industry, Innovation and Infrastructure	Computer-vision-based pothole detection can help identify road defects for timely maintenance, supporting safer and more resilient communities under SDG 11. The use of AI for infrastructure monitoring and maintenance supports technological innovation under SDG 9.
8	Focus Drive : Advanced Drowsiness Detection and Alert System Using Python and CNN model	AI / Machine Learning	PO1, PO2, PO3, PO4, PO5, PO6, PO9, PO11; PSO1, PSO2, PSO3	SDG 3 – Good Health and Well-being; SDG 11 – Sustainable Cities and Communities	Drowsiness detection and alerting is intended to reduce fatigue-related driving risk, supporting health and road safety under SDG 3. Safer road use and intelligent transport-safety applications contribute to safer communities under SDG 11.
9	Advanced Animal Tracking and Sedating system using Deep Learning Techniques	AI + Hardware	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO11; PSO1, PSO2, PSO3	SDG 9 – Industry, Innovation and Infrastructure; SDG 15 – Life on Land	Deep-learning-based animal tracking and controlled sedation combines AI with hardware for monitoring and handling animals, demonstrating technological innovation under SDG 9. Responsible monitoring and management of animals can support conservation and protection of terrestrial biodiversity under SDG 15.
10	NeuroDetect: Brain Tumor Detection using deep Learning	AI / Machine Learning	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO9, PO11; PSO1, PSO2, PSO3	SDG 3 – Good Health and Well-being; SDG 9 – Industry, Innovation and Infrastructure	Deep-learning-based brain-tumor detection supports medical image analysis and can assist healthcare professionals in identifying abnormalities, contributing to SDG 3. The application of advanced AI to healthcare diagnostics supports innovation in digital health under SDG 9.
11	BlockSnap: Gateway to authentic Blockchain Photography	Blockchain / Software	PO1, PO2, PO3, PO5, PO6, PO7, PO8, PO9, PO10, PO11; PSO1, PSO2, PSO3	SDG 9 – Industry, Innovation and Infrastructure; SDG 16 – Peace, Justice and Strong Institutions	Blockchain-based authenticity and traceability for digital photographs uses distributed-ledger technology to strengthen digital infrastructure and innovation under SDG 9. Tamper-evident records and provenance mechanisms can support trust, accountability and protection of digital records, relevant to SDG 16.

12	Identification and Vizualisation of Hazardious Gas	IoT / Hardware	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO11; PSO1, PSO2, PSO3	SDG 3 – Good Health and Well-being; SDG 11 – Sustainable Cities and Communities; SDG 13 – Climate Action	Hazardous-gas identification using sensing and digital monitoring can provide early warning of dangerous exposure, supporting health and safety under SDG 3. Monitoring hazardous conditions improves community safety under SDG 11 and can contribute to environmental monitoring and risk reduction relevant to SDG 13.
13	PROPREP AI: Interview Assessment BOT using Deep Learning and Natural Language Processing	AI / NLP	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO9, PO11; PSO1, PSO2, PSO3	SDG 4 – Quality Education; SDG 8 – Decent Work and Economic Growth	An AI interview-assessment bot can provide structured practice and feedback for interview preparation, supporting skills development and inclusive learning opportunities under SDG 4. Employability-oriented preparation and skills assessment are relevant to SDG 8.
14	Revolutionizing Pneumonia Diagnosis with Deep Learning approach to Chest X-RAY Analysis.	AI / Machine Learning	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO9, PO11; PSO1, PSO2, PSO3	SDG 3 – Good Health and Well-being; SDG 9 – Industry, Innovation and Infrastructure	Deep-learning analysis of chest X-rays is aimed at supporting pneumonia-related diagnostic assessment, contributing to health and well-being under SDG 3. Applying AI to medical imaging demonstrates innovation in healthcare technology under SDG 9.
15	GestureConnect: Machine Learning Driven Sign Language Translator	AI / Computer Vision	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO9, PO11; PSO1, PSO2, PSO3	SDG 4 – Quality Education; SDG 10 – Reduced Inequalities	Machine-learning-based sign-language translation can facilitate communication between sign-language users and others, supporting accessible learning and communication under SDG 4. Improved accessibility and inclusion support SDG 10.
16	Eye Blink communication for Paralyzed Patients using Morse code Conversion	Hardware + AI	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO9, PO11; PSO1, PSO2, PSO3	SDG 3 – Good Health and Well-being; SDG 10 – Reduced Inequalities	Eye-blink communication with Morse-code conversion is an assistive communication approach for people with severe motor limitations, supporting health, dignity and well-being under SDG 3. It can also improve communication accessibility and inclusion, supporting SDG 10.
17	Credit Card Transaction Fraud Detection	AI / Machine Learning	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO9, PO10, PO11; PSO1, PSO2, PSO3	SDG 8 – Decent Work and Economic Growth; SDG 9 – Industry, Innovation and Infrastructure	Fraud detection in card transactions helps protect digital financial activity and reduce losses from fraudulent transactions, supporting trustworthy economic activity under SDG 8. The use of machine learning for financial-security systems also supports technological innovation and resilient digital infrastructure under SDG 9.

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING , BATCH 2021-25 CSE-2
CSD416 Project Phase II

Sl No	Title of the project	Category	RELEVANT POS & PSOs	SDGs	Justification for SDG Mapping
1	Smart Adaptive Headlight System	Embedded System / IoT Based Project	PO1, PO2, PO3, PO4, PO5, PO6, PO8, PO9, PO11; PSO1, PSO2	SDG 3 – Good Health and Well-being; SDG 11 – Sustainable Cities and Communities	SDG 3: Adaptive headlights can improve nighttime driving visibility and reduce collision risk, contributing to safer transport and well-being. SDG 11: Safer intelligent-transport features contribute to safer and smarter communities.
2	Autonomous Disaster Response Rover with robotic arm	Robotics & IoT Based Project	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO10, PO11; PSO1, PSO2, PSO3	SDG 11 – Sustainable Cities and Communities; SDG 9 – Industry, Innovation and Infrastructure	SDG 11: An autonomous rover can support disaster-site response, remote inspection and safer emergency operations. SDG 9: Robotics, sensing and autonomous control demonstrate innovative and resilient infrastructure technologies.
3	Spatial Flood Hazard detection and Prediction using Telemetry	IoT & Data Analytics Based Project	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO9, PO11; PSO1, PSO2, PSO3	SDG 11 – Sustainable Cities and Communities; SDG 13 – Climate Action	SDG 11: Flood-hazard mapping supports risk-informed planning and more resilient communities. SDG 13: Flood prediction and hazard assessment strengthen climate-risk monitoring and adaptation.
4	Dynamic Mitigation of Misrouting Trojans in NoC Without Caging	Hardware Security Project	PO1, PO2, PO4, PO5, PO6, PO7, PO9, PO11; PSO1, PSO2	SDG 9 – Industry, Innovation and Infrastructure; SDG 16 – Peace, Justice and Strong Institutions	SDG 9: Detecting and mitigating NoC misrouting Trojans strengthens trustworthy and resilient computing infrastructure. SDG 16: Security-oriented detection and mitigation mechanisms contribute to trustworthy and secure digital systems.
5	Smart Misrouting Attack on NoC	Hardware Security Project	PO1, PO2, PO4, PO5, PO6, PO7, PO9, PO11; PSO1, PSO2	SDG 9 – Industry, Innovation and Infrastructure; SDG 16 – Peace, Justice and Strong Institutions	SDG 9: Analysis of misrouting attacks on Network-on-Chip systems addresses the security and reliability of advanced computing infrastructure. SDG 16: Hardware-security research supports protection, integrity and trust in digital systems.
6	Hate Speech Detection	AI / Machine Learning Based Project	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO9, PO11; PSO1, PSO2, PSO3	SDG 10 – Reduced Inequalities; SDG 16 – Peace, Justice and Strong Institutions	SDG 10: Hate-speech detection can help create more inclusive digital communication spaces and reduce harmful discriminatory content. SDG 16: Responsible detection of abusive content supports safer, more respectful and accountable online environments.
7	VTON with Integration of Skin Tone-Based Color Recommendation	AI / Computer Vision Based Project	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO11; PSO1, PSO2, PSO3	SDG 10 – Reduced Inequalities; SDG 9 – Industry, Innovation and Infrastructure	SDG 10: Skin-tone-aware colour recommendation can improve inclusivity and representation in virtual fashion experiences. SDG 9: Computer vision and recommendation technologies demonstrate innovative digital applications.
8	IOT Based Car Parking System	IoT Based Project	PO1, PO2, PO3, PO5, PO6, PO8, PO9, PO10, PO11; PSO1, PSO2, PSO3	SDG 11 – Sustainable Cities and Communities; SDG 9 – Industry, Innovation and Infrastructure	SDG 11: Intelligent parking can improve urban parking management, reduce unnecessary vehicle circulation and support efficient mobility. SDG 9: IoT sensing, connectivity and automation advance smart-infrastructure applications.

9	Sign Language Translator	AI / Computer Vision Based Project	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO9, PO11; PSO1, PSO2, PSO3	SDG 4 – Quality Education; SDG 10 – Reduced Inequalities	SDG 4: Sign-language translation can support accessible learning and communication. SDG 10: It can reduce communication barriers and promote inclusion for sign-language users.
10	AI Proctored Online Examination Portal	AI Based Application Project	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO10, PO11; PSO1, PSO2, PSO3	SDG 4 – Quality Education; SDG 9 – Industry, Innovation and Infrastructure	SDG 4: An AI-proctored examination portal supports digital delivery and administration of assessments. SDG 9: AI, computer vision and secure online examination infrastructure demonstrate digital innovation in education.
11	BlindSight	AI Based Project	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO9, PO11; PSO1, PSO2, PSO3	SDG 3 – Good Health and Well-being; SDG 10 – Reduced Inequalities	SDG 3: An assistive AI system intended to improve visual awareness can contribute to safer independent mobility and well-being. SDG 10: Assistive technology can reduce accessibility barriers and support inclusion.
12	Image Inpainting using Denoising diffusion probabilistic model	Deep Learning / AI Based Project	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO9, PO11; PSO1, PSO2, PSO3	SDG 9 – Industry, Innovation and Infrastructure; SDG 12 – Responsible Consumption and Production	SDG 9: Diffusion-model-based image restoration demonstrates advanced AI research and digital innovation. SDG 12: Efficient restoration of existing digital assets can reduce the need for repeated acquisition or regeneration of resources in applicable workflows.
13	Smart Gas Quality Systems	IoT Based Project	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO9, PO11; PSO1, PSO2, PSO3	SDG 3 – Good Health and Well-being; SDG 11 – Sustainable Cities and Communities	SDG 3: Monitoring gas quality can provide early indication of potentially hazardous air conditions and support health and safety. SDG 11: Environmental sensing can help communities monitor and manage hazardous conditions.
14	Heart Disease Prediction Using Retinal Images	AI / Deep Learning Based Project	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO9, PO11; PSO1, PSO2, PSO3	SDG 3 – Good Health and Well-being; SDG 9 – Industry, Innovation and Infrastructure	SDG 3: Retinal-image analysis for heart-disease risk assessment is a health-oriented AI application that can support earlier screening. SDG 9: Deep learning applied to medical imaging demonstrates innovation in digital healthcare.
15	Realtime Malware Analysis and Threat Scoring Using Memory Forensic	Cybersecurity Project	PO1, PO2, PO4, PO5, PO6, PO7, PO9, PO11; PSO1, PSO2, PSO3	SDG 9 – Industry, Innovation and Infrastructure; SDG 16 – Peace, Justice and Strong Institutions	SDG 9: Real-time malware analysis and threat scoring strengthen cybersecurity capabilities and resilient digital infrastructure. SDG 16: Cyber-threat detection contributes to safer, more trustworthy digital services and institutions.
16	Smart Intruder Detection System with Weapon Detection	IoT Based Project	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO11; PSO1, PSO2, PSO3	SDG 11 – Sustainable Cities and Communities; SDG 16 – Peace, Justice and Strong Institutions	SDG 11: Intelligent intrusion and weapon detection can support safer buildings and public spaces when used with appropriate safeguards. SDG 16: Security monitoring can contribute to prevention and protection of people and property in responsible security systems.