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Name of the faculty	Title of the paper	Date	National /International /Journal / Conference								
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R. Rajkumar	A Comparative Study of Skill Development	2025-26	National Journal							1	
R. Rajkumar	Paw Safe: An Extensive Technology-Driven Framework for Stray Dog Rescue,	2025-26	National Journal							1	

	Healthcare Management, Community Engagement, and Smart Urban Governance										
R. Rajkumar	Modelling Engineering and Data in Simulation and Computation for a Novel obstacle avoidance algorithm Enabling Efficient source-to-Goal Navigation of Mobile Robotic Vehicles using ML Techniques	2025-26	International conference with Journal								1
R. Rajkumar	Smart Health Monitoring System for Digital Wellness Using Blink Rate and Posture Detection	2025-26	indian journal of computer science and technology								1

1. A Comparative Study of Skill Development

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A Comparative Study of Skill Development

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Abstract: Skill Swap is a web-based online skill-sharing platform envisioned to create an organized and easy way for people to share the skills they know and to learn from others. In place of conventional teacher-student systems, the platform will let users take on roles of learners or mentors, depending on where their strengths and interests lie. The features it will offer include creating a profile, listing skills, matching, real-time chat, and tracking of sessions. Our aim is to provide a friendly, collaborative environment in which users can connect with each other, share knowledge, and grow together. This paper focuses on a design overview, implementation details, and expected outcomes of Skill Swap as a learning tool driven by the community.

INTRODUCTION

People always want to learn something new, but not all of them have the ability to afford paid courses, professional trainers, or structured learning environments. At the same time, each individual has certain knowledge that could be useful for someone else. Skill Swap is built on this very idea-learning can happen by connecting people who are willing to teach with people who are eager to learn.

The platform brings these people together through a user-friendly web application. This allows the users to list what they know, what they would like to learn, and then find suitable partners with whom they can exchange skills. With the project, the aim is to lower learning barriers, increase community interaction, and increase access to knowledge. It is focused on a simple design, reliable technology, and user-centered features to ensure smooth and meaningful exchanges.

This has shaped a new paradigm of skill acquisition, collaboration, and knowledge-sharing in digital learning environments. However, while instructor-led platforms and MOOCs remain important, most learners today prefer flexibility and individualization in learning pathways. Often, such learning paths develop organically through peer interactions: individuals teach some competencies they already possess and learn others from their peers. In many instances, the most relevant learning occurs via relatable peers who understand the realistic challenges of life rather than formal instructors. Skill Swap was constructed based on this principle. It connects users in a designated online forum where they can play the roles of learner and mentor with regard to their own various strengths and interests. Rather than using money or teaching qualifications, the model is founded on community-based sharing of skills in a casual, friendly, supportive environment. The Skill Swap website will enable people to build profiles outlining who they are, list the skills they are able to teach, specify the skills they would like to learn, and identify like-minded people that match their needs.

One of the key benefits of Skill Swap is its focus on accessibility and inclusiveness. Anyone can participate, at any skill level. Whether learning a new programming language, practicing dance, improving communication skills, or finding your creative hobby, there's always an opportunity for value-based exchange on the platform among people sharing the same interest in achieving their goals. Real-time chat, availability scheduling, and feedback mechanisms make it easy for users to coordinate sessions and establish trust with potential learning partner.

The philosophy of Skill Swap's design focuses on simplicity, transparency, and control by the users. Instead of relying on heavy algorithmic filtering, the system initially uses human-centered matching based on user profiles, interests, and availability. As user activity grows, the platform can move toward incorporating optional AI-powered recommendation

2. Paw Safe: An Extensive Technology-Driven Framework for Stray Dog Rescue, Healthcare Management, Community Engagement, and Smart Urban Governance

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1 of 5

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Paw Safe: An Extensive Technology-Driven Framework for Stray Dog Rescue, Healthcare Management, Community Engagement, and Smart Urban Governance

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Abstract: Healthy Street Paws (Paw Safe) addresses the critical issue of high mortality among urban stray dogs caused by untreated injuries, malnutrition, and lack of timely care. The absence of an organized reporting mechanism often leads to delayed or no intervention. This project proposes a mobile and web-based application that enables citizens to actively participate in animal welfare by reporting sick or injured street dogs.

Users can submit reports with images, GPS-based location, and brief descriptions. These reports are verified by administrators, prioritized based on urgency, and forwarded to trained volunteers who provide feeding, medical assistance, or transportation to veterinary clinics. Real-time tracking ensures transparency and accountability throughout the process.

Developed using ReactJS, Flutter, Node.js, and scalable databases, the platform aims to significantly reduce stray dog mortality through prompt, coordinated action. In the long term, the system supports data-driven animal welfare planning and can be enhanced with AI-based health detection, promoting sustainable and compassionate urban animal care.

Keywords: Stray Dog Welfare, IEEE Extended Paper, Smart City Applications, Community Platforms, and Animal Healthcare Systems

INTRODUCTION

Urban stray dogs face severe health and mortality challenges intensified by urban conditions. Nearly 60% are at high risk due to infectious diseases such as rabies and parvovirus, traumatic injuries from traffic and human conflict, and chronic malnutrition caused by limited access to food and water. The lack of timely, localized veterinary care results in prolonged suffering and high mortality rates.

This issue extends beyond animal welfare, posing serious public health risks through zoonotic diseases and contributing to environmental and population imbalances. Addressing this challenge requires scalable, multi-layered solutions, including mass vaccination, spay-and-neuter programs, community education, and accessible shelters for medical care and rehabilitation.

From a policy perspective, data-backed insights generated through digital platforms can support evidence-based decision-making. Authorities can allocate resources more effectively, design targeted vaccination and sterilization campaigns, and evaluate the impact of ongoing welfare programs. Predictive analytics can further assist in anticipating disease outbreaks and population

3. Modelling Engineering and Data in Simulation and Computation for a Novel obstacle avoidance algorithm Enabling Efficient source-to-Goal Navigation of Mobile Robotic Vehicles using ML Techniques



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ICONS2026-000172 | Abstract 71

Modeling, Engineering, and Data in Simulation and Computation for a Novel Obstacle Avoidance Algorithm Enabling Efficient Source-to-Goal Navigation of Mobile Robotic Vehicles using ML techniques

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ABSTRACT

This project presents a comprehensive approach to the design and implementation of an innovative obstacle avoidance algorithm tailored for mobile robotic vehicles. The primary aim is to develop a robust system capable of effectively detecting and navigating around obstacles in real-time scenarios. The algorithm is constructed using MATLAB, leveraging its computational capabilities and extensive toolset for algorithm development and simulation. The methodology encompasses several key stages. Initially, sensor data acquisition is performed through various sensors integrated into the robotic platform, including but not limited to cameras, LiDAR, ultrasonic sensors, or a combination thereof. Subsequently, a systematic and multi-faceted approach is employed for obstacle detection, involving techniques such as image processing, depth perception, and sensor fusion. The detected obstacle information is then processed and integrated to generate a dynamic and adaptable avoidance strategy. This strategy accounts for the vehicle's kinematics, environmental constraints, and real-time feedback, allowing for agile and safe navigation in complex and dynamic environments. The algorithm's responsiveness is optimized through iterative testing and refinement, ensuring its reliability and efficiency in diverse scenarios. The algorithm's performance is evaluated through extensive simulation studies and practical experiments with the mobile robotic platform operating in controlled and real-world environments. Quantitative metrics, including obstacle detection accuracy, avoidance efficiency, and computational performance, are employed to assess and validate algorithm's effectiveness. Outcomes of this research contribute to the advancement of obstacle avoidance methodologies for mobile robotics, offering insights into development of adaptive and intelligent systems capable of navigating challenging terrains autonomously.

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4. Smart Health Monitoring System for Digital Wellness Using Blink Rate and Posture Detection

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Smart Health Monitoring System for Digital Wellness Using Blink Rate and Posture Detection

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Abstract: Prolonged use of laptops and computers without proper breaks and posture has become a major cause of eye strain, fatigue, and musculoskeletal problems. Many users forget to rest, maintain correct posture, or even follow basic health practices while working for long hours on digital devices. This paper presents a Smart Health Monitoring System that promotes digital wellness by monitoring user behavior in real time and providing timely alerts and reminders. The system tracks eye blink rate to detect drowsiness, analyzes body posture and neck angle to identify slouching and applies the 20-20-20 rule to remind users to take regular eye breaks. When abnormal patterns are detected, the system generates alerts to encourage rest or posture correction. The proposed system is designed to be simple, non-intrusive, and suitable for students and professionals who spend extended hours on computers. Experimental observations show that the system effectively identifies fatigue and poor posture, helping users maintain healthier digital habits.

Key Words: Smart Health Monitoring, Blink Detection, Posture Monitoring, Digital Wellness, Computer Vision, 20-20-20 Rule

I. INTRODUCTION

In today's digital environment, a large number of people spend several hours working on laptops and computers for study, office work, and personal projects. Continuous screen exposure without proper breaks often leads to health issues such as eye strain, drowsiness, neck pain, and poor posture. Many users become deeply focused on their work and forget to take breaks, maintain a correct sitting position, or even eat meals on time. Over a long period, these habits can negatively affect physical health and productivity.

Although several fitness devices and wellness applications exist, most of them rely on manual input or focus only on basic activity tracking. They do not actively monitor user behavior during computer usage or provide real-time feedback for posture, eye fatigue, and screen-related health issues. As a result, users remain unaware of unhealthy habits while working for extended durations.

To address this problem, we propose a Smart Health Monitoring System that continuously observes user behavior through a camera-based approach and provides automatic reminders and alerts. The system performs three main functions. First, it measures the user's blink rate to detect drowsiness and alerts the user to take rest when fatigue is identified. Second, it monitors body posture and neck angle, generating notifications when slouching or improper posture is detected. Third, it applies the 20-20-20 rule by reminding users every 20 minutes to look away from the screen, helping reduce eye strain.

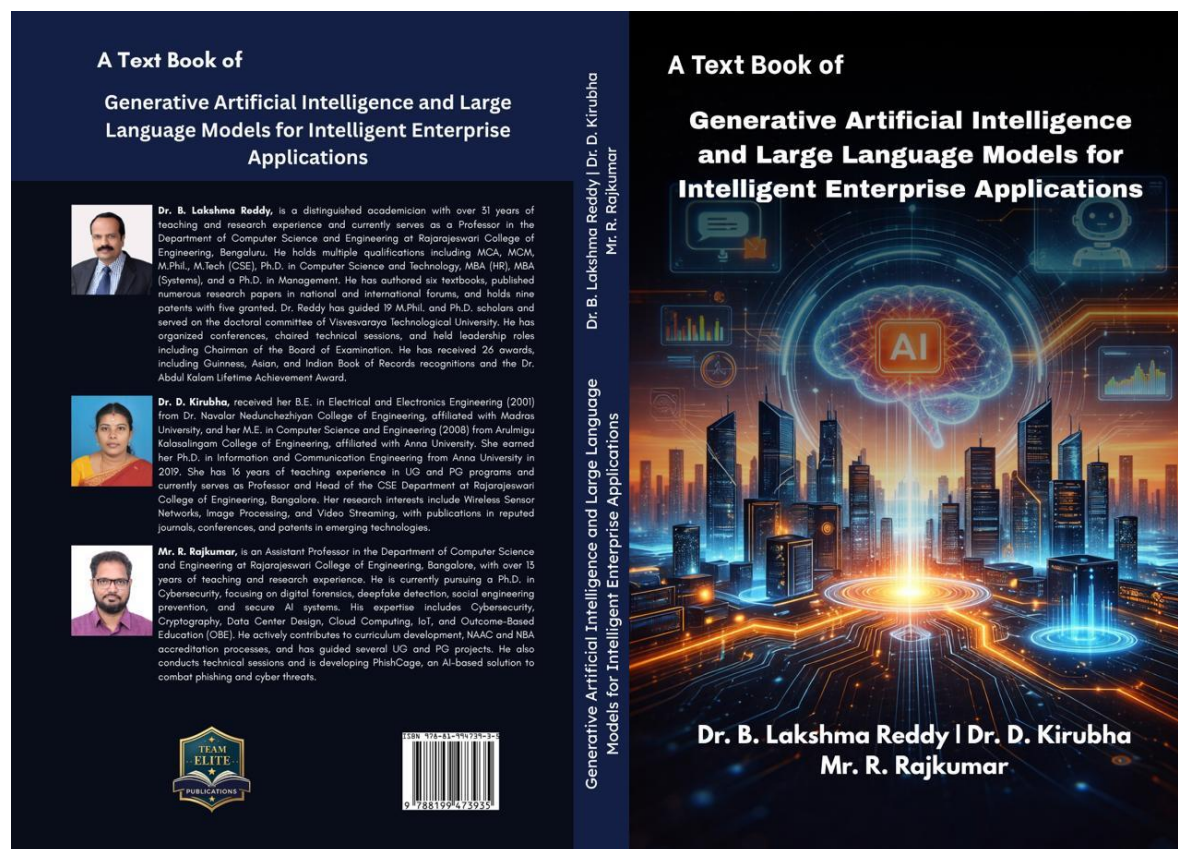
The primary goal of this system is to encourage healthier digital habits without interrupting the user's workflow. The proposed solution is especially useful for students, software professionals, and individuals who spend long hours working on computers. Future enhancements include adding reminders for timely meals and extended health monitoring features.

II. LITERATURE SURVEY

Many researchers have studied health monitoring using computer vision and IoT systems. Several works focus on detecting

Name of the Faculty	Title of the Book or Chapter	Page No	PUBLISHER Name	Year	Book /Book Chapter
Mr R Raj Kumar	Generative AI and Large language Models for intelligent enterprise Applications	ISBN-978-81-994739-3-5	Team Elite	2025-26	BOOK

1. Generative AI and Large language Models for intelligent enterprise Applications



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