**Integrating IoT and AI for Effective Ecosystem Monitoring and Conservation in Sri Lanka**

This research aims to develop an innovative approach to ecosystem monitoring and conservation in Sri Lanka by leveraging the potential of IoT and AI technologies. The study focuses on integrating sensor-based data collection, advanced analytic, and decision support systems to enhance our understanding of ecosystems, facilitate early detection of threats, and enable evidence-based conservation strategies. The research will collaborate with key stakeholders, including the Department of Wildlife Conservation, universities, environmental organizations, and local communities, to ensure the practicality and impact of the proposed solutions. Through the deployment of IoT sensors, such as cameras, acoustic devices, and environmental sensors, combined with AI algorithms for data analysis and modeling, the research will enable real-time monitoring of biodiversity, habitat conditions, and environmental indicators. The collected data will be used to develop predictive models, decision support tools, and early warning systems that aid conservation practitioners and policymakers in making informed decisions for effective ecosystem management and protection. The research outcomes will contribute to the conservation efforts in Sri Lanka and provide a replicable framework for other regions facing similar conservation challenges.

Keywords: Ecosystem monitoring, conservation, IoT, AI, biodiversity, decision support systems, early warning systems, Sri Lanka

**Developing an AI-Enabled Intelligent Transportation System for Sustainable Mobility in Sri Lanka**

This research aims to design and implement an innovative Intelligent Transportation System (ITS) for promoting sustainable mobility in Sri Lanka. The study focuses on integrating IoT technologies, AI algorithms, and data analytics to optimize traffic flow, reduce congestion, minimize carbon emissions, and enhance transportation efficiency. Collaborating with relevant stakeholders, including transportation authorities, urban planners, and technology experts, the research will develop a comprehensive ITS framework tailored to the unique transportation challenges and requirements of Sri Lanka. Through the deployment of IoT sensors, such as traffic cameras, vehicle detectors, and weather sensors, combined with AI algorithms for real-time data analysis and modeling, the system will dynamically monitor and manage traffic conditions. It will provide intelligent traffic signal control, adaptive routing, and real-time traveler information to improve the overall transportation experience and reduce environmental impact. The research outcomes will contribute to the development of a sustainable transportation infrastructure in Sri Lanka, leading to reduced travel time, increased road safety, and improved air quality.

Keywords: Intelligent Transportation System (ITS), IoT, AI, sustainable mobility, traffic management, congestion reduction, carbon emissions, Sri Lanka