Paper ID: IRCUWU2025-

AI-Powered Smart Queue Management and Appointment Booking System for Efficient Public Service Delivery in Sri Lanka

This project proposes a Smart Queue Management and Appointment Booking System for government services in Sri Lanka, addressing inefficiencies in public service delivery such as long waiting times, disorganized queues, and limited digital access. By integrating AI-driven queue time prediction, a multilingual user interface, and real-time administrative dashboards, the system aims to improve service efficiency, cut waiting times, and increase citizen satisfaction. The solution employs a realist ontology and positivist epistemology, using both quantitative and qualitative data from surveys to guide development. Key features include online appointment scheduling, digital token issuance, real-time queue monitoring, and secure data handling in compliance with privacy regulations. The system is designed to be scalable, inclusive, and adaptable, providing a replicable model for public sector institutions in developing economies. Technologies such as Python, React.js, and MySQL/PostgreSQL are targeted, with an emphasis on accessibility for users with low digital literacy and strong data security measures. This initiative seeks to modernize Sri Lanka's public service delivery, aligning with global trends in digital transformation.

Keywords: Smart Queue Management; AI Queue Prediction; Multilingual Interface; Public Service Delivery, E-Government