

ABSTRACT

This final project aims to develop a Prototype Visitor Monitoring System for Tourist Areas to enhance management and security in tourist locations. With the growth of the tourism industry, the increasing number of visitors to tourist areas poses a challenge in effectively managing and monitoring the situation. This prototype will utilize machine learning technology and data analysis to obtain real-time information about the number of visitors and visitor density in each sector. This data will be processed and displayed through an intuitive visual interface for tourism area managers, enabling them to make more accurate and prompt decisions in dispersing crowds if any areas become overcrowded. Furthermore, this prototype is also expected to provide accurate information about the real-time situation and conditions at the tourist location through an application. Through the development and testing of this prototype in relevant tourist areas, it is hoped that it can positively contribute to optimizing the management of tourist areas and improving the comfort and security for visitors. Additionally, the research findings indicate that the system's Object Detection Testing was conducted effectively, with the system consistently identifying and counting individuals in recordings at a speed of 5-8 fps and achieving an accuracy rate of 94.7%. The User Interface Testing showed that the system received positive feedback from users, with 42.6% of respondents rating it as "satisfactory" and 53.8% rating it as "very satisfactory." The System Communication Testing demonstrated that the system operates efficiently, complying with the specified time limits within the range of 0.60 - 0.92 seconds. Furthermore, the Notification Testing confirmed that the notification feature of the system functions effectively. These research results illustrate the potential of this prototype to provide real-time information about the number and density of visitors in tourist areas, allowing managers to make more precise and timely decisions in crowd management.

Keywords: tourism, Jetson Nano, machine learning, real-time