

ABSTRACT

The need for a safe and controlled residential environment has driven the creation of innovative solutions. Traditional gates in residential areas are often ineffective and prone to human error or limited supervision. Theft and security issues frequently occur despite the presence of security personnel. To address these challenges, a sophisticated and automated solution is required. The Smart Barrier Gate based on the Internet of Things (IoT) emerges as a solution that integrates technology to meet residential security needs. Unlike traditional gates, this solution allows access to residential areas without the need for security personnel, reducing supervision limitations and human error. Using a dedicated application, residents can manage access to open and close the gate remotely via their smartphones with a delay time of 5 seconds. This solution also offers the ability to record and store visual logs of visitors entering or exiting the residential area with a resolution of 1280x720 pixels. The primary requirements in developing the Smart Barrier Gate system include visitor selection based on resident decisions with 100% accuracy, direct access with a residential card with a scanning range of 0-3 cm and a maximum delay time of 2 seconds, remote operation by residents with a delay time of less than 5 seconds, visitor log information, and affordable production costs. This solution combines automated control with easy access through an application, providing an effective and affordable way to manage security and visitor access in a residential area.

Keywords : Smart Gate, Internet of Things