

INTELLIGENT RAILWAY GATE CONTROL SYSTEM USING MICROCONTROLLER AND SERVO MOTOR

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Railway level crossings are accident-prone locations due to delayed gate operation and human error in manual control systems. To address this issue, this paper presents an intelligent railway gate control system using a microcontroller, track sensors, and a servo motor. The proposed system automatically detects an approaching train, activates warning signals, and controls gate opening and closing without human intervention. Track sensors placed on either side of the crossing provide real-time input to the microcontroller, which ensures timely and smooth gate operation through a servo motor. Experimental evaluation shows that the proposed system achieves an accuracy of approximately 98%, compared to conventional and infrared-based systems¹². The system is cost-effective, reliable, and suitable for improving safety at railway level crossings³.
