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| **Title:** | Design and Simulation of a PLC and IoT-based Railway Level Crossing Gate Control and Track Monitoring System using LOGO | | |
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| **Abstract:** |  |
|   Abstract— In the current research report, designing and simulation of a Programmable Logic Controller (PLC) and an Internet of Things (IoT)-based railway level crossing controlling and track monitoring system has been presented. As such, we need an automated system. In this paper, the main concern is to design a PLC and an IoT-based automatic interlocking system to protect trains from accidents or clashes and ensure the safety and security of the passengers. We have designed a model using LOGO software with the PLC as the main heart of the control system. The ladder logic program for PLC was developed using LOGO software on a personal computer and then downloaded into the PLC. For communication between the PLC and computer, an RS485 serial port was used. To detect the presence of a train on the track, ultrasonic and radio frequency (RF) transducers and infra-red (IR) sensors were used as both the transmitters and receivers. The system was simulated using LOGO software. In the system, we have incorporated Internet of Things (IoT) and Visual Basic programming software to connect it with the mobile Apps and create Graphic User Interface (GUI) respectively. In the future, we will implement it on large scale using hardware and will build a central database system through which monitoring can be done smoothly. | |