

## Chapter 7

# IoT–Based Automatic Boom Barrier for Enhancing Surveillance Security in Public Places

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### ABSTRACT

*In order to reduce the unnecessary waste of the workforce, the proposed system has been developed. In this chapter, a secure environment from that future will secure and help increase motivation for intelligent things and productivity and enter newly grown markets, startups, and entrepreneurs. The significant contribution to knowledge was to improve the automatic boom barrier system, considering the low cost of the budget. This chapter is concerned with providing an automatic boom barrier, the gate operated by Raspberry Pi. Some of the features considered during this system's design were cost-effective and easy to use compared to existing systems. Security plays an essential role in making smart cities using the “automatic boom barrier system.”*

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## **INTRODUCTION**

A boom barrier, also known as a boom gate, is a bar or pole pivoted to allow the boom to block vehicular or pedestrian access through a controlled point. Typically, the tip of a boom gate rises in a vertical arc to a near-vertical position. Boom gates are often counterweighted, so the pole is easily tipped (Ata et al., 2019; Deshmukh & Joshi, 2019; Jain et al., 2017; Mishra et al., 2019). Boom gates have often paired either end to end or offset appropriately to block traffic in both directions. Some boom gates also have a second arm which hangs 300 to 400 mm below the upper arm when lowered to increase approach visibility, and which hangs on links, so it lies flat with the main boom as the barrier is raised. Some barriers also feature a pivot roughly halfway, whereas the barrier is raised, the outermost half remains horizontal, with the barrier resembling an upside-down *L* when raised.

In this system, Raspberry-Pi is the central controller. Also, the web camera, motor, and ultrasonic sensor are the crucial parts of this device. Firstly, Identify a car through KNN and Raspberry Pi. It will then automatically operate the Raspberry Pi if it is under the ultrasonic sensor range (for example – if any vehicle arrived, then the Raspberry Pi camera auto-capture number plate). After that, the Pi recognized the car photo. The car details are then stored in a known database like Plate number, date, time. After that, data comparison with the existing database will find the authorized car and then automatically operate (example-open the gate); otherwise, not perform any operation.

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