**CHAPTER**

**INTRODUCTION**

* Recent rapid development in artificial intelligence and edge computing systems have provided a gateway to upgrade modern surveillance systems. With such high-end AI-powered security solutions, there is still a large market gap for cost-effective, efficient monitoring solutions for medium-sized facilities.
* Traditional CCTV systems, although ubiquitous, include much human monitoring with intelligence lacking in regard to automatically detecting potential threats or even analysis of the patterns. In contrast, high-tech cloud-based AI surveillance systems are very expensive and sometimes too complex for most smaller institutions and thus require infrastructure upgrades and bandwidth capabilities.
* This project idea addresses the given challenges by developing an edge-AI based CCTV surveillance system specifically designed for facilities with moderate daily visitor traffic (50-500 people). Our solution balances functionality, cost-effectiveness, and privacy by upgrading the existing CCTV infrastructure with edge computing capabilities. Local video feed processing using lightweight AI algorithms will make it possible to monitor in real-time and provide simple analytics without requiring continuous connectivity to the cloud or the installation of expensive hardware upgrades.
* Our solution centers on providing practical, applicable solutions that strengthen security operations but are mindful of resource constraints and institutional privacy concerns more typically associated with medium-sized institutions, such as small educational facilities, healthcare clinics, and office spaces. This system embodies a major step forward in democratizing the application of intelligent surveillance capabilities at the edge.