Chapter 13
Design and Development of an Internet of Things (IoT)-Based Anti-Theft System in Museum Cultural Relics Using RFID

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ABSTRACT

Art colonnades and museums all over the world are the first option for individuals to visit for the enhancement of the cultural life of people. To ensure their safety, museums have established numerous cultural security measures. Traditional strategies do not obstruct their pace entirely. They only use a computer in the museum to check individuals at the entrance and exit. Therefore, the authors proposed a gallery anti-stealing device created on the internet-of-things (IoT) technology that ensures security through passive readers/writers of RFID. Radio frequency identification (RFID) remains a system that practices isolated data storing and recovery and offers object tracking with a unique identity code. The system then sends sound and light warning information, while the photographic camera structure is triggered to capture a picture at the same time. The recognition of the accuracy in the hardware component of the device can be additionally enhanced by the use of this technology to increase the safety of museum equipment.

INTRODUCTION

His increasing interest in and concern for his artistic heritage is an important aspect of our community. The overall number of museums in our nation reached 5,136 at the beginning of 2019. Museums have often treated non-profits and public welfare as a common understanding for a long time. Museums necessity be available to the community free of responsibility in many nations. G. Ke & Q. Jiang (2019) reported that over 20,000 exhibits were held in the National Museum in 2018, approximately 1.5 million people went addicted to the museum, then go to see the museum had become a method of life. This also life changes leftovers a part of the illicit elements in the museum. A new kind of robbery has arisen in recent years: burglary and the illicit selling and purchase of creative and historical artefacts have risen to an alarming degree. This situation, which concerns all those who are important for overall or private collections, is increasingly endangering cultural heritage. Since theft and trafficking occur, action must be taken against them while a deeper understanding of these phenomena is required in order to do so. The museum equipment was locked at the earliest level. Now we can see several unopened exhibition areas hanged with a major lock in the Forbidden Zone. R. Tesoriero et al. (2008) reported that the most traditional locking system, however, has many shortcomings due to the continuous growth of society, and robs can effortlessly open the padlock. Advanced, sound waves are the high-end technology device of the anti-theft museum structure. Through the continuous growth of the technology sector, by electronic sensors, individuals may detect different kinds then occurrences of wide-ranging waves, accordingly that wide-ranging-proof anti-theft devices come into being. Burglar alarm, microwave infrared detector, glass break detection system, microwave objective motion detector, and door electromagnetic detector, which have been applied in different industries, are the most commonly used anti-theft devices. The implementation of anti-theft warning systems in the financial industry, such as banks, Automatic teller machines and other locations, will reduce the incidence of criminal cases like theft. Maximum data need to be appropriately kept secret in military camps, and defiant-theft devices can notice when doubtful persons remain encroaching. In areas through heavy stream of traffic movement, such by means of train positions then schools, offenders and unknown people can be alerted to the blacklist by adopting face recognition technology. In command toward ensure the protection of peoples breathes and belongings, such successful methods will curb the incidence of ferocious occurrences and illegal happenings. N.-A. Çayirezmez et al. (2013) reported that Ultraviolet microwave detectors produce warning signals only when they simultaneously activate an infrared detector and a microwave detector, linked with other conventional defiant-theft apprehension devices. Industrial ultraviolet microwave sensors are fitted with different noise instruments towards notice the grade of hurt by varying angles in order to satisfy different needs. The microwave board motion sensor has actual very-high-frequency radio waves with identical quick wavelengths compared to the infrared waves detector, that implies that microwaves are effortlessly reflected by additional substances. The benefit of these systems is that the device will warn if the observed intensity is offset and during detection phase, even uncertainty the robber prudently implements the theft. The downside of this device, however, is that it can receive intrusion from outward reality data, such by way of sound then rain, talking noises, etc., then it is informal to trace. O. B. Sezer et al. (2018) reported that in museums, cameras have recently been mounted to recognise collections in museums and to use image processing techniques for security.

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