

**EMERGENCY SECURITY SYSTEM**

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## **Chapter I**

### **INTRODUCTION**

#### **Project Context**

“When there is dark, let there be light”. A phrase that anyone can think of in darkness and unsecured times especially when there is a power failure. Philippines, being the most disaster-prone country in the world, needed a lot of survival materials that people can use in such times. Water, foods, clothing are the most important things they should have with them, but aside from these, they should have a means of light and security particularly in evening.

Emergency Security System is a device that ensures safety and security that operates in a building with a battery-backed electronic device that comes on automatically when a building experiences a power outage. Emergency Security System are standard in new commercial and high occupancy residential buildings, such as college dormitories. Most building codes require that they be installed in older buildings as well.

By the nature of the device, an emergency security system is designed to be a more accurate on its ability to detect any intruders or thief by the help of PIR motion sensors. Every model, therefore, requires some sort of a battery or generator system that could provide safety during a blackout. As technology advanced, security systems became smarter and more reliable. Emergency security technology has made it virtually



impossible for any danger to approach or make it in your home without you and the proper emergency response teams knowing about it.

Automatic battery backup is a huge aspect on the system because on its unique abilities that automatically converts the power from AC to DC when there is a power interruption. The system normally used lead acid batteries to store a full 120-volt charge normally charges in AC since we aim for efficient and more ecofriendly device, the system charges on heat energy with the use of solar panel.

Emergency Security System is compost of three main parts. The first one is the emergency light where in it can help people to clearly see their pathways. Second is the burglar alarm that alarms when it detects unnecessary motion in any restricted areas. The last one is the security camera embedded with motion sensor that sends a message to assigned security personnel and automatically captures images when it detects movement or motion within the area and a face detector that analyze face if human is the intruder.

### **Purpose and Description**

The proponents purposes is to make a fast and accurate Emergency Security System in order to help and provide safety and security.

Emergency Security System plays a very crucial role when it comes to safety. Emergency security is considered as people's savior and assurance safety even when there is a power crash all of a sudden. What



people really look for is a mechanism that provides security immediately even when there is a power breakout.

### **Objectives of the Project**

1. To identify the requirements of a security system.
2. To develop an Emergency Security System using embedded technology.
3. To test the developed Emergency Security System.

#### *General Objective:*

The objective of this project is to design an Emergency Security System for commercial and high occupancy residential buildings such as college, dormitories, banks and more using embedded technology.

### **Scope and Limitation**

Emergency Security System can last for 40 hours upon fully charge. The proponents used 2LED lights, Security camera and Burglar Alarm that consume 1000mAH, and a 12V motorcycle battery with specs of 4Ah/10HR. This project is not the same as the standard security systems that covers a wider area but this guarantee to operate 24/7 even when a power failure occurs. Instead of making it in a natural way that when the power/current turns on it charges on socket or AC(alternating current) but we aim for ecofriendly purpose and more efficient for the user so that we use solar powered energy.



## **Chapter II**

### **REVIEW OF LITERATURE**

#### **Compact Emergency Lighting System Using High-Brightness**

**LED Lamp** a considerable portion of the energy consumed in the electrical system in the world today is converted to artificial lighting. Light is essential to harmony between the activities of people in the contemporary world. With the increase in the energy consumption by different segments in relation to the difficulty of generation, it is possible to see the importance of efficient ways of lighting. In the late nineteenth century lamps supplied by electricity, based on heating of a carbon or tungsten filament which became incandescent inside a bulb, were developed. This kind of lamp still has been used in some applications. However, due to the low efficiency presented by incandescent lamps and the growing concern about energy saving, new products have been emerging and have become popular. Among them are compact fluorescent lamps, which provide superior performance compared to incandescent lamps. Around the 60's, the emission of light by recombination of electrons and holes in semiconductors materials was reported and called electroluminescence, emerging the Light Emitting Diode (LED). This device presents higher luminous efficiency and long useful life compared to the fluorescent lamps. Currently, the LED can be considered the major challenge in the lighting industry in which



technological innovations emerge at every stage. Emergency lighting system is used to maintain the lighting in a possible failure of the normal energy source. It is mandatory in places such as buildings and public areas, ensuring safety, preventing accidents and indicating routes of escape. The traditional models of emergency lighting systems use fluorescent lamps that require batteries with high energy capacity which had considerable weight and size. When light sources with high luminous efficacy and low voltage level are applied in these equipments, the battery used can be reduced and the system becomes compact. Thus, this work develops an emergency lighting system integrated into a compact lamp using high-brightness LEDs, allowing the use of the emergency lighting system also in the daily activities supplied by mains. Besides, it has the advantage of easy installation of the equipment, with the simple replacement of incandescent and compact fluorescent lamp by LED without any change in the electrical installation. One characteristic of the proposed circuit is the output current control without switch-mode DC-to-DC converters when supplied by mains or by battery. A voltage regulator based on a capacitor with a full-wave rectifier is used to supply the LEDs, and to charge the battery by mains. When a mains' failure happens, two LEDs are supplied directly by battery.



### **Security camera system with privacy protection into a residential area**

There is the number of crimes in a tendency to increase in the nation and the number of crimes reached about 3million cases. Crime-arrest ratio is about 20 % by 2002, and it is about 30 % by the present. However, the increase of the arrest rate understands that it is not a thing by the number of arrests with a thing by the decrease of the number of crimes. Consequently, it is necessary that the security activity is beefed up and the number of arrests is increased. Therefore, in the e-JIKEI Network Promotion Institute, suggest the e-JIKEI Network System that is the new security camera system which was developed by this society. Social experiment was tested which examined stability and the utility of the system as for the thing of the cooperation of the police. The e-JIKEI Network Promotion Institute proposed “e-JIKEI Network” ([www.e-jikei.org](http://www.e-jikei.org)). The project intends to recreate the mutual watching system, which had usually functioned in old communities, in the present days but in amuch more powerful and flexible form with the aid of the information technologies (Fujii et al., 2004; Fujii et al., 2005a; Fujii et al., 2005b). The project is discussed from the viewpoint of social dimension (Ueda et al., 2006; Fujii et al., 2008). This society for a study in the past carries out security experiments using this system. For example, it is maintenance of security of shopping streets and theft provision measures of bicycle at parking area. The shopping streets, which were set up five



PC, have been monitored by two or three cameras connected to each PC. PC was set up into management office and parking area has been monitored by four cameras. Place where prone to crimes was introduced this system this activities. However, crimes in the residential areas increase in late years and there is a problem which to resolve a case is late because of few eyewitness in residential areas. For the reason, it is thought that families, who are not interested in neighboring houses and surrounding communities, increase in late years. In the conventional communities, a connection between neighborhoods is strong and neighborhood fellow helped and lived. Citizens are more cautious about suspicious individual in the communities. Because the local connection becomes weak, it is thought that eyewitnesses decrease.

Therefore a trial to reproduce the conventional communities was performed by using security camera system with IT. It is a method with a security camera at the time of crime prevention and as a substitute of the eyewitnesses at the time of case outbreak in residential areas. The security camera is used for monitor in a site of house conventionally. However, the road in front of house is watched with a security camera by this method. The whole community will be watched by many families watching a road and suspicious individual and criminal are identified. The state is shown in figure 1. However, neighborhoods are watched indiscriminately by watching public space in residential areas. To solve this problem, a privacy protection function was introduced into software



for monitor in this society for a study. The social experiment that introduced this system in consideration of privacy into the residential areas for the first time was performed.

**Alarm System** a security alarm is a system designed to detect intrusion – unauthorized entry – into a building or area. Security alarms are used in residential, commercial and industrial properties for protection against burglary (theft) or property damage, as well as personal protection against intruders. Some alarm systems serve a single purpose of burglary protection; combination systems provide both fire and intrusion protection. Intrusion alarm systems may also be combined with closed-circuit television surveillance systems to automatically record the activities of intruders, and may interface to access control systems for electrically locked doors. Systems range from small, self-contained noisemakers, to complicated, multi-area systems with computer monitoring and control. Securitas Ireland manage specially designed burglar alarms and services for a variety of small and medium commercial organization's as well as large corporate enterprises. Securitas managed security alarms systems effectively deter intruders and protect your most valuable of assets, whilst ensuring your insurance and legislation needs are met.

#### **Securitas Managed Solutions:**

1. An office using sensors at its doors to protect against intruders gaining entry from outside.



2. Motion detection devices for interior protection of a series of offices.
3. Magnetic sensors to safeguard prescription drugs in a pharmaceutical cabinet.
4. Glass break detectors protecting the most vulnerable windows.
5. Vibration detectors to help protect safes containing sensitive records in a secure area.

Our tailored system will incorporate the latest state of the art technology to ensure complete freedom, ease of use and meets the highest standards in the industry. We offer all systems, ranging from Hard Wired through to Wireless to meet all standards. We can install intruder alarms which will activate a response through the alarm receiving centre (ARC). These monitored intruder alarms provide a superior level of security, particularly in isolated or rural premises where a ringing alarm may not be heard by anybody for quite some time.



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