CHAPTER 2

LITERATURE REVIEW

2.1 Background of Study

A system is an assemblage of inter-related elements comprising a unified whole. From the Latin and Greek, the term "system" meant to combine, to set up, to place together. A sub-system is a system which is part of another system. A system typically consists of components (or elements) which are connected together in order to facilitate the flow of information, matter or energy [1]. Security system is an electrical device that sets off an alarm when someone tries to break in [3].

Years ago people would rely on simple means to alert others of a breach in security. Little bells attached to a door that rang when it was opened, tin cans tied to a string across a pathway, for instance. Some placed a large bell into a metal enclosure and placed four lantern batteries inside of it with a relay and mounted it to the outside of the building. From the enclosure, there were two sets of wires, one for the door contacts and one for the keyswitch that turned the bell on and off. This technology is commonly referred to as a "local bell." Maintenance was so much simple. Depending on the usage, these batteries could last up to a year. When the bell rang weakly, replace the batteries[10].

This simple system used the relay to monitor the door contacts. The keyswitch was located outside, and the owner would close all of the doors and turn the key at night. If the doors were open with the keyswitch on, the bell would ring. Closing the door would not stop the bell; only by turning the key could you silence it. The local bell

uses a wiring scheme that latches the relay contacts into an alarm condition [11]. This idea is further expanded for other usage such as transports and larger systems.

Over 70% of the vehicles made today come with a remote keyless entry (RKE) system either standard or as an option. RKE systems are also a high volume after-market accessory. Most remote keyless entry systems alarm the vehicle against theft and lock and unlock the doors and trunk [8]. Some include remote start and car finder functions [9].

Remote keyless systems consist of a key fob transmitter and a receiver inside the vehicle. They most commonly use a frequency of 315MHz in the the U.S. and Japan, and 433.92MHz in Europe . Europe has also opened up the 868MHz band to accommodate the growing demand for remote keyless entry systems[13].

The key challenges for most remote keyless entry designs are achieving low power consumption in both the RKE transmitter and receiver, while achieving good range and reliability for the RKE system [16].