# .FACULTY OF ENGINEERING

# DEPARTMENT OF COMPUTER ENGINEERING

**Bachelor of Computer Engineering**

**Design and construction of low cost Smart Image Surveillance System**

**BY**

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# ACKNOWLEDGEMENT

# DECLARATION

I declare that this project report with all its contents is my original work and has not been presented in any institution before for academic purposes. Where other people's material has been made use of, it is clearly and fully referenced.

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## APPROVAL

This is to approve that this Final Year Project Report has been fully and consistently worked on and submitted to the Department of Computer Engineering under the supervision of the undersigned supervisor.

**Dr. SEMWOGERERE TWAIBU**

Date: ……………………………… Signature: ………………………………………………………..

# LIST OF ACCRONYMS

CMOS     Complementary Metal Oxide Semiconductor

CCD     Charge Couple Device

DVRs     digital video recorders

PDA     Personal Digital Assistant

BAS     Building Automation system

CCTV     Closed-circuit television

ESS     Electronic Switching System

SMTP     Simple Mail Transfer Protocol

WTK     Wireless Tool Kit

GSM     Global System for Mobile Communications

RISC     Reduced Instruction Set Computer

CISC   Complex  Instruction Set Computer

# Abstract

A low cost surveillance system comprises of a passive infrade sensor which is activated after some delay of two minutes when authentication card is not swiped at the door to allow access and this catters for those who intend to break the door.when unknown card is swiped,  the system captures images and sends to the email account as a notification to alert home personel, however if a known card is swiped authentication is granted and no images are captured. A camera is placed in a position to view want happens at the door and produces static images. A video camera is mounted to the camera mount and electric motors are mounted for panning and tilting the mount and camera. The raspberry pi and control circuit is mounted to the position accessed by every member of the family and coupled to actuate the electric motors to open  the door based on the command sent from the control circuit and to actuate the camera zoom and focus as well as to enhance the camera's  image with descriptive word captions. The computer is programmed for automatic or manual operation of the system.

This system can help to monitor security at home at home with real time images delived on email so that reaction are taken by the administrator.

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# CHAPTER ONE

1.0 Introduction:

## Background:

Mobile devices are integrated with our everyday life these days and Security is the primary concern everywhere and for everyone. The security and remote surveillance system is increasingly prominent feature on the mobile phone.The modern home is integrated with many automation technologies. The user can control door lock, light, air conditioner and other devices using remote control. In this modern world crime has become ultra-modern tool. In this current time a lot of incident occurs like robbery, stealing, unwanted entrance happens abruptly. So the security does matters in this daily life. People always remain busy in their day to day work also wants to ensure their safety of their beloved things[1].

Video/image surveillance systems play very vital role in various fields of our modern society such as in personal security, banking, business and offices etc. Starting from small houses to huge industries, now image/video surveillance is essential and plays very vital role to fulfill our safety aspects in many ways. Burglary and theft have always been a problem for normal residents, particularly for those living in the big cities. Thus it is rather essential to find an efficient way to drastically reduce it. Throughout the world the usage of surveillance systems began from 20th century[2]..

Surveillance means monitoring the people's changing information like activities, behavior for the purpose of protecting, managing and influencing. The surveillance is French word which means "watching over". Actually the surveillance means watching over from a distance by means of electronic equipment such as CCTV camera[2].

Surveillance is very helpful to law enforcement to investigate/prevent criminal activities, for recognizing and monitoring threats. Basically the design of a surveillance system consists of analyzing the needs of the people, reviewing the system costs based on existing hardware and technology, monitoring choices then at last planning for Installation. The design choices may vary from time to time due to advancement in technology. Surveillance system has always been playing a vital role in dealing with the burglary cases[2].

industrial levels.

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