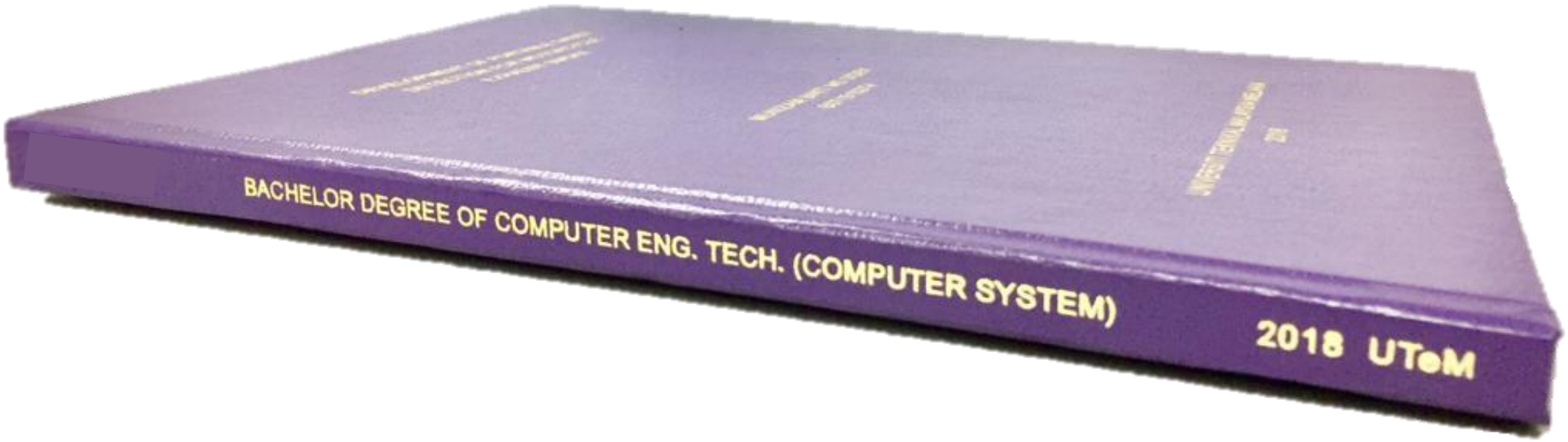
Literature Review



What is Literature Review?

- It is actually the reading of the works of others before commencing on our own research work
- Literature review can pave the way for better research
- It can help in identifying the relevance of the research

What are the Purpose of Literature Review ?

- To limit the problem area
- To define the problem
- To avoid unnecessary repetition
- To search for new approaches
- To recommend suitable methods
- To sample current opinions

Sourcing your material

- It is very important to use reliable sources information such as journals, conference papers and official reports.
- Try to keep referencing from Websites to a minimum as material on websites does not undergo peer review or any form of quality control to ensure that it is accurate.

Example 1: Home Security System Based On Fingerprint Scanner

No	Author(s)	Techniques/Components Used	Advantages	Disadvantages
1	Anubala *et al.* (2014)	Fingerprint Sensor, GSM Modem, Servomotor	- Provide high security - Less cost - Comfortable to use	No alarm system used in order to alert the peoples
2	Shankar *et al.* (2015)	Fingerprint Sensor, Arduino Microcontroller, Buzzer	- High accuracy in security - No false intrusion - Easy to use	It should have GSM calling system
3	Cortez *et al.* (2016)	Fingerprint Sensor, Arduino Microcontroller, GSM Module	- High security system - Use fingerprint scanner and provide auto generate pass code for unlocking the locker	It should have a technique to detect the intruders
4	Singh *et al.* (2015)	Biometric System, Fingerprint Recognition, Android Application, GSM Module	- Generate pass code after five time fails attempts by using android application - Generate a text message and automatically sent to nearest police station or turning on the buzzer if there is intruders	It should have a technique to detect the intruders
5	Mynuddin (2014)	Fingerprint Sensor, NFC (Near field Communication) tag card and PIR Sensor.	- Provide high security system - Provide good security system to authenticate the user using fingerprint scanner and NFC tag card	- Password can be guest easily and the NFC tag may be stolen

Introduce camera and PIR sensor

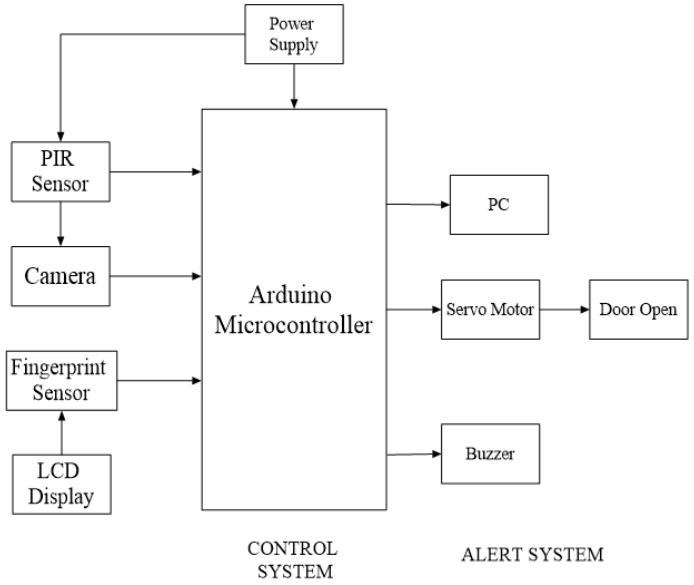
Security System

LR Discussion

Based on the research, there are advantages and disadvantages by using different techniques in term of the security. In term of the security, the fingerprint is the best choice for the security as its proves that it is unique identification for every individuals who scan it and the most secured system because fingerprint of one person will never matches the other individuals other than password and RFID card. But, some features can be added to make the project more efficient.

Literature review vs. Research Methodology

- Today, home safety become major threat that has been faced for every individual. Home security system using fingerprint sensor is develop to improve the security that has been developed. The fingerprint sensor can solve the security problem as it is the best authentication device as it has unique identification. This system will use fingerprint sensor to replace the password, identification cards or PIN verification techniques as the password could be easily guess and the database could be hacked by anyone. Also the card may be stolen or missing. This system will help the user to unlock the door without using the key as it use the fingerprint to unlock the door. This security system is develop with camera module and Passive Infra-Red (PIR) Sensor as the security to detect the motion of the human and sense the camera module to capture the image. So, this image will be display in PC using graphical user interface. With this improvement, the user could easily protect their house and watch their house 24 hours.



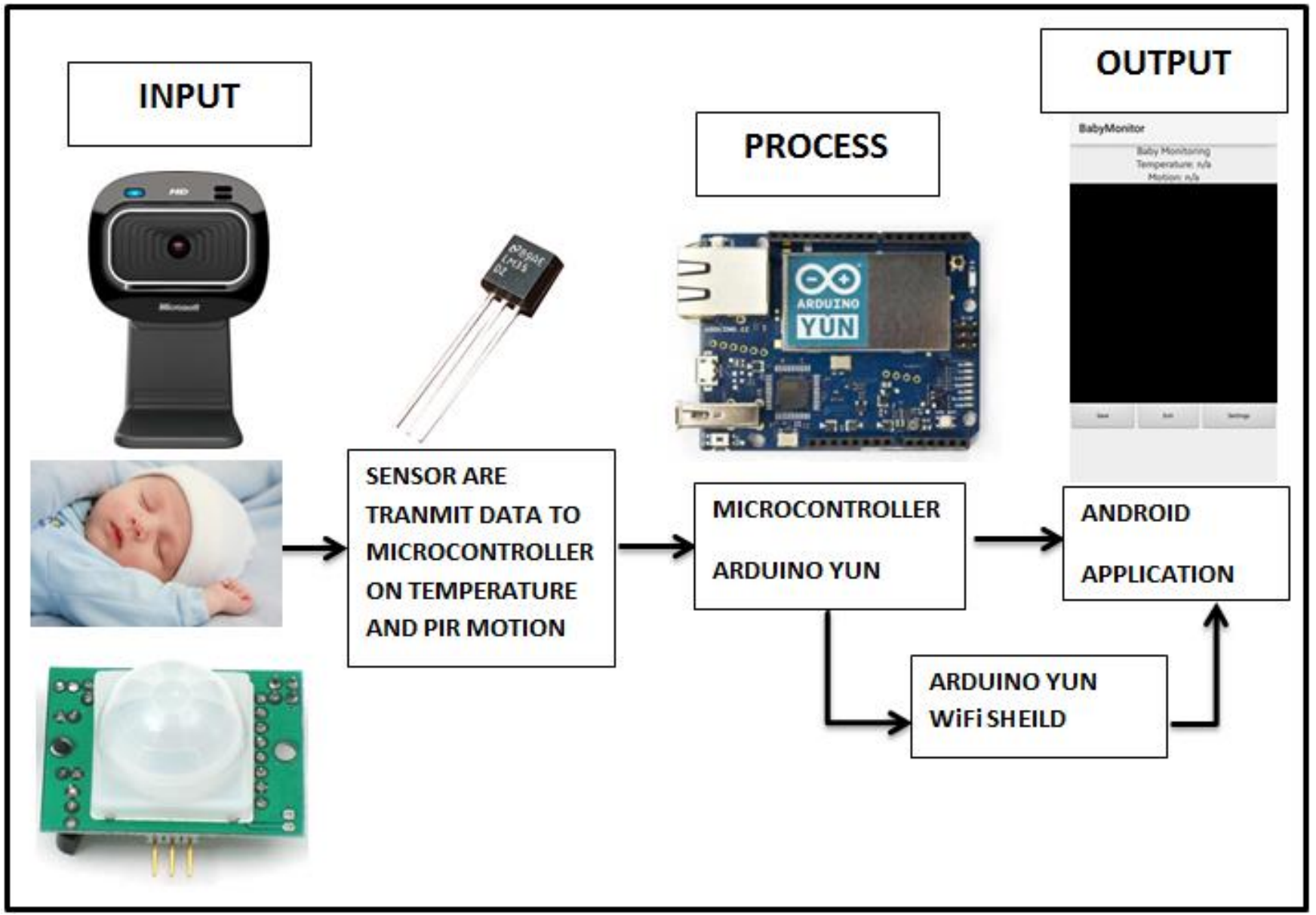
Example 2: Baby Monitoring Based on Arduino and Android Application

Author	Microcontroller	Monitoring System	Types of sensor	Communication System	Function	Advantage	Disadvantage
Sheikh Ferdoush (2014)	Raspberry Pi & Arduino UNO R3	Computer	RHT03 Temperature and humidity sensor	XBee Pro S2B	Monitoring environmental	low-cost, Compact, scalable, easy to customize, easy to deploy, and easy to maintain.	highly scalable
Savita P.Patil (2014)	PIC18F4520	LCD	Temperature sensor, Pulse Rate Sensor, Moisture sensor, Motion Sensor	GSM Module	Baby Monitoring	Inexpensive, simple to use	Graphical, Quality, Distance
Pedro Acevedo (2015)	Arduino Mega 2560 card,	Computer	Oscilloscope	USB Cable	Pulse Generator	Low-cost pulse, low power	Heat, Delay
Lionel Nkenyereye (2016)	Arduino & RaspberryPI	Server PC	Humidity sensor, Distance sensor	Wireless Sensor Network	Data center environmental	Strategy for efficient maintenance	Take long time, Low performance, Energy inefficiencies
Mr. Mamun (2015)	Arduino Uno Board	Laptop	Temperature Humidity Light Intensity	KST-RX806 is a wireless data transmit	Wireless Based Temperature, Humidity and Light Intensity Monitoring System for Child	Cost Effective	Less accurate value, difficult to monitor
Tariq AL-Kadia (2013)	Arduino Mega 2560 Board & Arduino Wi-Fi Shield	LCD	--	Wi-Fi Shield	Network Analyzer	WiFi network available, high speed	Expensive, Unsecure
Sujal Rane (2016)	Raspberry-Pi/Arduino	Mobile phone	Temperature sensor,	Bluetooth	Baby Health Monitoring System	More Efficient	Analog signals, Time consuming, Not very user friendly, Discomfort, Sensors tend to be unreliable, Inaccurate.
Mohannad Jabbar Mnati (2017)	Arduino Nano V3.0	Mobile Phone	voltage sensor, current sensor	Bluetooth HC-05	A Smart Voltage and Current Monitoring	Cost effective, Easily applicable	Distances, No synchronize.

Monitoring System

LR Discussion

There are many baby monitors have been built. Each baby monitors has its own advantages and drawbacks, which is refined in this chapter. This project aims to develop a temperature based and movement detection to capture baby's condition that synchronizes with Android smartphone. The novelty is used the current technology Android smartphone that will monitor baby's temperature and movement via live streaming video.


INPUT
PROCESS
OUTPUT
BabyMonitor
Baby Monitoring
Temperature: n/a
Motion: n/a
ARDUINO
YUN
SENSOR ARE TRANMIT DATA TO MICROCONTROLLER ON TEMPERATURE AND PIR MOTION
MICROCONTROLLER ARDUINO YUN
ANDROID APPLICATION
ARDUINO YUN WiFi SHEILD

LITERATURE REVIEW

2.1 Introduction
2.2 Overview of Process Tomography
2.3 Review on the application of tomography in food industry
- 2.3.1 Ultrasonic Tomography
- 2.3.2 X-ray Tomography
- 2.3.3 Electrical Resistance Tomography
- 2.3.4 Optical Tomography
- 2.3.5 Neutron Tomography

2.4 Review on the application of computer vision in food industry
2.5 An overview of image sensor
- 2.5.1 Charge Coupled Device (CCD)
- 2.5.2 Complementary Metal Oxide Semiconductor (CMOS)
- 2.5.3 Literature on the use of image sensors in process industry

2.6 Review on particles size, shape and concentration in food industry
- 2.6.1 Particle sizing in food processing
- 2.6.2 Particle shape in food processing
- 2.6.3 Particle distribution in food processing

2.7 Discussion

Even though computer vision is widely used in food industry, this technique is only capable of acquired and analyzed the image information gather at the outer view of the sample. Thus, the system cannot be implemented to view internal behavior of process flow.

From the review, the image sensor has a capability in monitoring process. It has been widely implemented in various industries for various functions. The image sensor can provide excellent image quality with high image resolution and less circuitry involved. Besides, it can be manipulated to follow numerous needs.

Discussion

Various techniques have been implemented in food industry. Each technique has its advantages and disadvantages. Although computer vision has been widely implemented, it can only observe the external view of sample only at the specific angle. Ultrasonic tomography and Electrical Resistance Tomography (ERT) were suffered with soft-field effect which the sensitivity distribution was decreased towards the center of the pipe vessel. Radiation-based tomography, for example X-ray tomography emits ionizing radiation which was potentially hazardous to human health as well as involved chemical changes in the food material. Even though, less research has applied optical tomography in food industry, many studies have been undergoing for particle characterization purposed. Therefore, this technique can be implemented for particle characterization in food industry as it provide save, simple, not-intrusive and non-invasive instrumentation system for inspecting particle properties of concentration, shape and size for food processing.