Chapter 1

INTRODUCTION

1.1 Project Background

Implementation of latest technology in manufacturing process can improve productivity of the process. A lot of new features have been upgrade to manufacturing process system from year to year by engineer make the process more accurate, efficient, safe, and flexible related increase in the productivity. Latest microcontroller technology that integrated with wireless communication can be used as a platform to increase the monitoring capability.

Current assessable technology provides potential for remote integration and collaboration in manufacturing applications. The remote technology converts information and represent it in form of real-time visual information to the user which that can be accessed at different location and multi view display. This technology gives the advantage to prevent hazard of the emission or radiation where the machine operator will directly be exposed as he or she go near the machine to measure or operate the machine for certain cases.

For this project, a remote system to monitor the conventional thermoforming equipment will be developed and implement. The projects are improvement of conventional thermoforming equipment develop by previous student that used the wired data acquisition system to monitor the heat transfer on thermoforming process. The manual and decentralized monitoring system for this equipment can be considered as unproductive if the number of machine is high and being us for high scale production.
1.2 Problem Statement

In performing manufacturing process, machine operator facing difficulty in accessing the machine or equipment from different location and the monitoring process needs to done near the machine in identifying thermal characteristic of thermoforming process.

1.3 Project Objective

The objectives of this project are:

1. To develop hardware and software for remote monitoring system of thermoforming equipment.
2. To analysis the temperature responds on thermoforming process.

1.3 Project Scope

The scopes of this project are as follows:

1. Create software coding for monitor and control the thermoforming equipment.
2. Link the machine input and output data with the computer and mobile device remotely.
3. Analysis the temperature on thermoforming process that produces by the equipment.
1.5 Thesis Outline

This thesis is classified into five chapters. The contents of each chapter are summarized as below:

Chapter 1 briefs the introduction of the project. The background, objective, problem statement, scope of project summarizes the content of thesis are explained in this chapter.

Chapter 2 consist of the literature review that made from several journals and article that been refer which elaborates the recent research on the technology and also consist of the methodologies that has been applied in this project

Chapter 3 explains the hardware and software design of the project. In hardware design, will be focusing on the hardware that link between machine and display device. For software design, the programming of the GUI will be explained. The connections of hardware between the sensor and the thermoforming equipment are shown in circuit schematic diagram.

Chapter 4 will show all the results and the analysis of the project. All of the result obtains will be analyzed and the comment will be given based on the result getting.

Chapter 5 concludes the outcome of this project. It also includes the recommendations on this project for future works to improve the system.