CHAPTER 3

METHODOLOGY

3.1 INTRODUCTION

This chapter describes the method used to perform this research. Methodology is referred to a process or a tool used to conduct a research to obtain information and accomplish the targeted research. Further analysis of data collection is required in order to achieve the objectives as mentioned in Chapter 1 previously. A flowchart in Figure 3.1 depicts the methods for gathering data and information. The approaches used are entitled with:

a) Study the current state condition of the small press machine at Manufacturing Engineering Laboratory
b) Pilot visit to PHN Sdn Bhd
c) Comes out with the idea to design the external preparation equipment
d) Produce 2 conceptual designs using CAD Software
e) Compare and select the best design to be produced
f) Stimulate the design into Rapid Prototyping machine
g) Run the CAD data using Rapid Prototyping machine to fabricate the prototype
h) Conclusion and recommendation
3.2 PROCESS FLOW CHART

START

Study current condition of press machine and stamping

Pilot visit at PHN Industry

Design idea

Produce 2 conceptual designs / reproduce

Design validation

Stimulate the selected design into RP machine

Fabricate the prototype

FINISH

Figure 3.1: Flow Chart for methodology
3.3 LITERATURE REVIEW

Literature study is an initial move to acquire the primary vision with the purpose to identify problems and scope of the study. Literature review engages with reading process, discussion and observation which is completed before the data collection begins. The main area of study is to design and developing good external preparation equipment for small press machine.

3.4 LOCATION BACKGROUND

This project is focusing on the stamping machine that is located at Manufacturing Engineering Laboratory. There are two types of press machine which are 60 tonnes and 80 tonnes capacities. However, this project only involved press machine 60 tonnes. Studying the current condition of press machine to see the lack of that need to be improved to ensure the production process can be done in a quick and there is no waste in term of time and labor. A video recorder was used to analyze how setup tasks are executed in the current case. Then, based on the activities, total time is analyzed. Through the study, it can be concluded that there is a lack of a need to be improved to produce a complete stamping process cycle and do not waste time and labor. The most significant deficiencies that need improvement are in terms of equipment preparation to carry out the process of converting a die. As this project focused on SMED’s external preparation, a prototype of die change carrier is designed and fabricated. This prototype will bring the idea and also can help to determine the best manufacturing materials and process to the person who will continue this project in order to produce the actual product.