CHAPTER 3

METHODOLOGY

3.1 INTRODUCTION

This section basically focuses on methodology used in executing this project. The project begins by collecting data from Vacuumschmelze (M) Sdn Bhd. The observation is conducted based on two models which are 6161- X001 and model 6161-X037. Software simulation of Pro Model was used in form of trial and error on designing new layout. The layouts are designed and the data is recorded in the table.

3.2 FRAMEWORK OF PROJECT

The framework of project is starting with confirming the project title with supervisor. The project continues with the discussion with the assigned supervisor to detail out the project problem statement, objective, scopes of the project. Every two weeks meeting with supervisor will arrange. After that is seeking for the company to conduct this project evaluation. When doing this research in background of manufacturing company, application and permission letter was drafted and sent by email to the company including Johor and Pahang. Fortunately, Vacuumschmelze (M) Sdn Bhd gives good response from their general manager which allows doing the project where to improve the flexible production line by changing the layout. After the discussion is approved, the project is started immediately. The date and timing is arranged before going to Vacuumschmelze (M) Sdn Bhd to do the industrial visit.
The purpose is to understand the problem occur along the layout in one of the line in manufacturing toroid (See figure 3.0). During the visit, Mr Mohd Ariff bin Zakaria as general manager in Vacuumschmelze (M) Sdn Bhd give briefing on the background of company and product produce. As general manager, Mr Arif empowered Mr Faizal as the supervisor to explain more in the production line. Next, the visit is arranged by Mr Faizal to describe more on assembly production line of the toroid 6161-X001 and 6161-X037. There are several issues arise were highlighted by the supervisor in the production line and all the issue is take account for study purpose.

Then follow by study the issue or problems arise in production line. The proposed solution can be apply in this issue is by doing the simulation on the production layout to improve the production line. The main problem at the production line is the uses of long conveyer and this will cause large space used to the line. The company needs to put the automation machine from another plant to the plant to saving the space use. So the improvement propose is to changing the layout to the cell layout.

The next appointment is arranged to visit the company to get data collection for simulation. In order to build a simulation model, the data is required such as cycle time, waiting time and type of operation used. Then the project is continuing with the data analysis. About ten reading of cycle time and waiting time will be taken for each process at the workstation and the average will be calculated.

Continuing with simulation and modeling using ProModel Simulation software. The data such as cycle time will be input into the ProModel simulation software to run the simulation and it will verified by observe the animation simulated for correct behavior. Two alternatives layout were designed in order to improve productivity. The validation of the model is carried out by looking and observed at the animation. The following sequence is the output of toroid with the actual system is compared and generated the simulation result.
3.3  OVERVIEW FLOWCHART

As an overview of flowchart of the research, the element need to consider in conducting the project is to determine the layout that suitable to use to reduce space usage in plant. The layout includes straight layout and cell layout or U-shape layout. The flowchart shown in Figure 3.1 and Figure 3.2 is the detail on how the methodology is conducted along the project research.