DEVELOPMENT OF ASSEMBLY FLOOR LAYOUT

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"I declared that this thesis is the result of my own work except for the ideas and summaries which I have clarified their sources. The thesis has not been accepted for any Degree and is not concurrently submitted in candidature of any Degree"

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ABSTRACT

SIRIM Micro Precision (SMP), a unit under SIRIM Berhad located in Shah Alam has developed a multi orientation micro precision grinding machine branded TCG8. It is a machine capable of producing precision cutting and milling tools among other capabilities with an accuracy of +/- 2 microns and able to work on hard materials such as tungsten carbide. With TCG8 recently being pushed into commercialization stage from research and development, SIRIM Berhad is gearing towards the production stage of the machine. This project aims to develop a plant layout consisting of an assembly work area that enables workers to perform duties in optimal time with minimum capital. Data regarding the production of the TCG8 and the production area are collected by visits and discussions with SMP. A plant layout designed previously by SMP but not yet implemented is simulated using DELMIA Quest to obtain the production time and workers' travel distance.

Another layout design is produced and simulated using DELMIA Quest in which certain data are manipulated such as number of workers and positioning of work cells. The layout designs are evaluated by certain factors that have been studied to obtain an optimized layout which are listed in an evaluation matrix table and filled by the staffs of SMP and result of the simulation of all layout designs are compared. Staffs of SMP have agreed that the new layout design have more points that adhere to the evaluation method and there is an improvement in terms of production time and workers' travel distance although there are still room for more improvement.

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