

**DEVELOPING LEVEL FITTER PLATFORM
USING KARAKURI MECHANISM**

By

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STATEMENT BY THE AUTHOR

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ABSTRACT

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Manual material handling are still prominently used within the Industries operating in Indonesia. Manufacturing, Warehousing, Retail, and other Industries that requires the movement and placement of objects still requires manual material handling in their daily operation. Prolong manual material handling can cause discomfort and long term health issue towards the worker. This research is conducted in order to create a karakuri based tool as a solution to this problem and as a substitute of manual material handling conducted by the worker. Instead of bending and reaching in order to move objects, the level fitter platform will enable the worker to automate this working process. This research is carried out using the DMADV research methodology in order to build the tools required to automate this working process. The result in this thesis will be a newly improved level fitter platform developed using karakuri mechanism and principles. The tool can be used as a lowering equipment in order to substitute manual material handling. After conducting the research, It is found that the tool are able to perform when the force from the bottom box are more than 50 N (5kg). This way, the tool are able to move bac towards it's initial position. The pulley are able to move as intended when the boxes are filled with mass of 6.5, 3.75, and 1.25 kg. However, the ergonomics of the tool are unable to be improved due to the lack of change In the positioning of the tool

Keywords: Karakuri, Pulley, Ergonomics, Tool, Material Handling



DEDICATION

I dedicate this thesis to my family, friends, teachers, and all of my peers in this journey



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