

## ABSTRACT

*In the potato raw material processing at the BBC Potato Chips Factory, there are 12 stages that must be completed before the potato chip products can be marketed. The drying stage is a time-consuming process. The drying stage utilizes two methods, namely sun drying for 1-2 days or using an oven machine for 6 hours. The choice of method is influenced by the local weather conditions. If the weather is cloudy, the drying process is done using the oven machine. On the other hand, if the weather is clear, the sun drying process is carried out in the Green House by drying the potato slices. However, both the sun drying and existing oven machine processes have some drawbacks, such as the poor posture of workers and the suboptimal performance of the machines due to the limited capacity of the trays for holding the potato slices and uneven heat circulation. These shortcomings have an impact on the production output and the health of the workers.*

*To address the issues and create a design that meets user requirements while referring to the existing machines, the reverse engineering method is employed. In addition to focusing on the proposed oven machine design, the REBA (Rapid Entire Body Assessment) value is calculated for the workers during the sun drying process and while using the proposed machine.*

*The resulting design is an improved oven machine that caters to user needs, including increased tray capacity, optimized blower size, alternative fuel selection, and an easy-to-use mechanism for input and output of potato slices. Furthermore, the REBA value of the proposed machine is compared to the existing conditions. The calculation results indicate that the use of the proposed oven machine can reduce the risk of musculoskeletal disorders (MSDs) for the workers. Moreover, there is a significant efficiency increase of 82.4% when analyzing the efficiency of using the proposed oven machine. This increase is attributed to the much larger production capacity compared to the existing machine.*

*It is expected that the resulting design of the proposed oven machine will assist the BBC Potato Chips Factory in overcoming the existing challenges and supporting the workers in the production process.*

***Keywords – Potato Chips, Potato Slices, Oven Machine, REBA, Reverse Engineering, Musculoskeletal Disorders (MSDs)***