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Design and Fabrication of a Coconut Sorting Machine

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Abstract

Sri Lanka is among the leading countries in coconut production and holds a significant share in the world coconut product market. However, the process of sorting coconuts is not precise in the Sri Lankan marketplace. This project aims at designing and fabricating an efficient sorting machine for husked coconut. The machine is designed for sorting of husked coconuts according to the size into three categories. It uses the roller conveyor technology, and seven main rollers are used in the design which are driven by a 400 W single phase motor. The center-to-center distance between the rotating shafts is the key feature for the sorting mechanism which was decided after the proper data collection from the related organizations, authorities, employers in the field and the customers. The designed components are tested, and the finite element analysis results were examined to ensure the safe working conditions of the machine. Arduino technology is used to count the sorted coconuts in the three categories. Machinery has improved the quality of life and facilitated the smooth flow of large-scale businesses by increasing economic benefits through the efficiency, accuracy, time management and cost effectiveness. The efforts required in achieving the outputs can be effectively and economically decreased by the implementation of better designs.

Keywords: *Sorting machine, Conveyor, Coconut, Design*