

Design and Construction of an Automatic Tobacco Leaf Shredding and Arranging Machine System for the Tobacco Processing Industry

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ABSTRACT

The tobacco leaf slicing and arranging process is an important stage in tobacco processing that is still commonly performed manually, requiring considerable time and labor. This study aims to design, manufacture, and test the functionality of an automatic tobacco leaf slicing and arranging machine to improve process efficiency. The research method consisted of needs identification, design using Computer-Aided Design (CAD) software, component fabrication, machine assembly, and functional testing. The designed machine consists of an upper conveyor as a material feeder, a pressing system, a slicing system using a rotating blade, a middle conveyor driven by a leadscrew mechanism, and a lower conveyor for transporting trays used to collect the sliced tobacco. The results show that the machine design was successfully realized according to the proposed design. Functional testing indicated that the slicing system was capable of slicing rolled tobacco properly, while the arranging system successfully distributed the sliced tobacco into the trays through the combination of conveyors and the leadscrew mechanism. Several issues encountered during testing were addressed through design improvements, allowing the entire system to operate according to its intended functions.

Keywords: *tobacco leaves, slicing machine, arranging system, conveyor, leadscrew.*