

AUTOMATIC DESIGN OF SYRUP MIXER USING AUTODEKS INVENTOR SOFTWARE

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ABSTRACT

Manual syrup stirring often takes time and effort, and does not guarantee the consistency of the mixture. To overcome these problems, an automatic syrup stirrer was developed which was designed to simplify the mixing process with more even and efficient results. This tool uses an electric motor as the main driver which is connected to a propeller-shaped stirrer or stirrer. The system is controlled by a microcontroller which allows the time and speed of stirring to be adjusted as needed. In addition, this tool is equipped with a temperature sensor to maintain the quality of the syrup during the process. The test results show that the tool is able to stir the syrup consistently with time and speed that can be adjusted automatically. This innovation is expected to increase the efficiency of syrup production, both on a household scale and in small industries. The stages of this research are observation, literature study, machine design and design testing which includes stress analysis and design feasibility testing. The results of the stress analysis simulation on the frame structure obtained a Von Mises Stress value with a range between 0 MPa to 0.003836 MPa and a minimum safety factor value of 0 ul and a maximum of 15 ul. The design feasibility test was conducted using a questionnaire distributed to 5 expert respondents which was then calculated using a Likert scale. The results showed a score of 78.6% which was in the fairly good category.

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