

***ANALYSIS OF THE DEVELOPMENT OF A CORN GRINDING MACHINE
USING A LOAD CELL SENSOR***

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ABSTRACT

Corn is one of the main ingredients for animal feed that requires an efficient grinding process. The grinding machine used still has limitations, especially the absence of an automatic weighing system. This study aims to analyze the development of a corn grinding machine using a load cell sensor to improve efficiency and simplify the weighing process.

The research method used was an experimental method through literature study, tool design, testing, and data analysis. The machine used a 0.75 HP single-phase induction motor, load cell sensor, ESP32, I2C 16x2 LCD, tachometer, and clamp meter. Testing was carried out with load variations of 0–5 kg of corn kernels.

The results showed that without load, the motor speed reached 1711.3 rpm with a current of 0.4 A. At loads of 1–5 kg, the speed decreased to around 1493 rpm and the grinding time increased from 65 seconds to 420 seconds. The load cell sensor worked well and the weighing results were close to the digital scale. The torque value of 47.04 Nm indicated that the machine was still able to work optimally. This corn grinding machine was considered effective and efficient for the corn grinding process.

Keywords: *corn grinding machine, load cell, ESP32, efficiency*