

Design and Development of Corn De-Shelling Machine for Commercial Usage



B. Jnana Vamsi Kumar

jnanavamsi@gmail.com
Ph. No: 0 90305 48809

Student's Name **B. Jnana Vamsi Kumar** **PD (PT-2011)**

Academic Supervisor(s) H. S. Lohit and C. Dileepa

Industrial Supervisor(s)

Keywords: Corn, Corn De-shelling, Shelling and Farmers

Abstract:

In rural areas of the country it is observed that shelling of corn is done manually. Manual shelling takes a lot of time. Most of the mechanical shellers are designed for multi-grain threshing or shelling, which causes great damage to the kernels besides breaking the cob into pieces and the cost of purchasing the mechanical shellers are high for the farmers, and therefore it is necessary to design a low cost system which is affordable and also increase shelling efficiency but reduce damage of kernels.

In this regard, patent references were taken to find out the various mechanisms, ethnography study; user interviews were carried out to get exact problems and the requirements of the user. All the problems were captured and the customer voice was converted to technical voice to help generate the QFD. The concepts were generated based on the QFD and the final concept was selected using Pugh's Matrix method.

A complete 1:1 working prototype of the selected concept was developed. The machine runs with an RPM of 1440 units. The validation study shows the rate of shelling the corn cob is 2 sec/cob. The performance and efficiency of the machine is an improvement over other methods shelling.



Various concepts of corn de-shelling machine



Final concept



Prototype