

SWEETCORN SEED REMOVAL

¹B.SURESH RAM, ²K.SATHISH, ³B.ARCHANA, ⁴M.PAVAN, ⁵G.ARUN

¹ Assoc. Prof, Dept. of ECE, CMR COLLEGE OF ENGINEERING & TECHNOLOGY

² Asst. Prof, Dept. of MECH, CMR COLLEGE OF ENGINEERING & TECHNOLOGY

³ Asst. Prof, Dept. of CSE, CMR COLLEGE OF ENGINEERING & TECHNOLOGY

⁴⁻⁵ B-TECH, Dept. of CSE, CMR COLLEGE OF ENGINEERING & TECHNOLOGY

Abstract

Since there are many maize threshing techniques in India which are used in our life. The main problems with these machines are that they are not affordable to farmers who are having acreage farms and which they do not require these big threshing machines. Many farmers in India are not affordable to use these machines because of their cost. So these farmers resort hand operated tools which gives low output, more damages of kernel threshed from cob, which is monotonous work. Since inventions of maize threshing by machines reduced the hectic work for farmers but these machines never provided the cost saving, accident precautions. These machines are automatic operated, fuel operated. So as man machine system can be established these machine provides simple mechanical design. This literature report is review on human powered machine, the survey proved to system which shows cost effective and functional viable.

1. INTRODUCTION

In today's developing world human being's innovative ideas had taken the world in all direction concerning about the production and safety in industrial establishments. Threshing/Shelling/Corn deseeding is the process of removing the kernels from the cob. It is the process of harvesting because the Maize kernels when harvested are attached to the cob which is hard. Most of the farmers who are having low acreage Maize production meet several difficulties because of high labour expenditure and cost of foreign Maize Threshers. Some machines are of good

qualities but more costly where are other somewhat hazardous methods, but it is not, the amount of time and money spend in the invention of device or the sophistication of its operation is important, but its convenience, utility and operational efficiency that are important in considering the device. Maize is another world's most Versatile seed crop .The techniques used previously were by using the process of rubbing the Maize cobs against one another by hand or by direct removal of kernels with low shelling rate. Another technique used is by hand stuffed with Maize are beaten with wooden fail. This

method causes damage to the kernels. Thus, the quest for a satisfactory cheap effective means of detaching the kernels from the cob is important to the small and even medium size farmers in the country. Nowadays a few motorized, PTO operated machines have come into market but the prices of machines are not affordable to peasant farmers. Also some designs of hand operated Sheller's have been designed, which have been developed, which shelled many corn with the help of drum. The main problem of these drums was wastage of kernels and detaching process was in less percentage and we have to remove the remained one with help of hand, which was more tedious work. Therefore, the aim of this investigation was to built and develops a maize Sheller using locally available material so that the machine will be operated continuously for a longer period of time with high rate of shelling without causing damage to the kernels and evaluate the performance of developed machine for shelling rate, shelling efficiency, kernel damage and the rate of throughput.

2. RELATED WORK

Corn is grown on small scale by farmers in developing countries like India. Corn is sold by farmers with cob. The average kernel price is approximately twice the price of cob. Hence, more income can be

generated by farmers if corns are decorticated and kernels are sold by themselves in the market. But this requires a cheap, manually operated and efficient corn Sheller. Lack of corn processing machines i.e. corn Sheller, is a major problem of corn production, especially in our country India. A study designed, fabricated, and performance of a corn Sheller consisting of feed hopper with a flow rate control device, shelling unit, separating unit and power system. The performance of the machine was evaluated in terms of throughput capacity, shelling efficiency, material efficiency and mechanical damage. Regression models that could be used to express the relationship existing between the Sheller performance indices, moisture content and feed rate were establish. Sweet corn is one of the most popular and favorite snacks of all time . The extraction of seeds from corn cob is a difficult process . Many people just cut down the corn seeds from the corn cob which leads to wastage and going to large industries with little produce is waste of time and money. Hence to avoid these we designed a sweetcorn seed removal machine to extract seeds from corn cob .

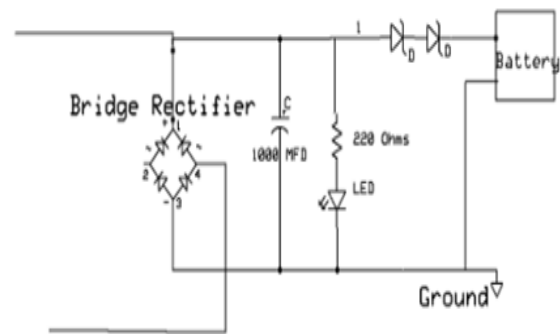
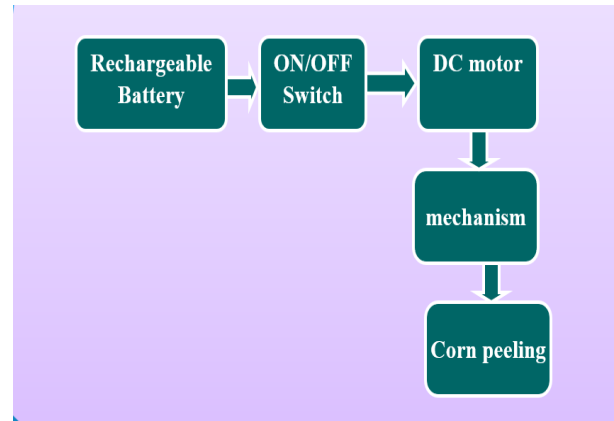
3. IMPLEMENTATION

Motor selection to choose proper electric motor for this application based on torque speed and power. To construct a structure

to fit all accessories to it with proper moving attachments. Designing of shelling shaft .Retraction of shells from corn hubs. To design threshing shaft. To design separation zone for corn shells and seeds. Maize shelling is a post-harvest process. Defined it as the process of detaching the maize kernels from the dry cobs, best achievable at a moisture content of about 13%. Many farmers in the developing-world still face a serious challenge with maize shelling. This is because the process is tedious when done manually, which is usually the case, and requires a considerable number of hours or even days of intensive labor. Some resort to manual means of shelling such as hand shelling, repeatedly beating cobs in sacks with sticks or spreading it over plastered ground floor in the house or outdoors. Low efficiency, high levels of wastage through breaking off kernels, dirt and excessive labor hours attend such methods.

1. When power is applied. DC motor turn in one direction at a fixed speed.
2. They are optimized to run at a fixed, usually high RPM.
3. Torque is highest at the rated speed and lowest at low speeds.
4. Inexpensive and commonly available.
5. If the applied load is greater than the capacity of the motor, the motor will stall and possibly burn out.

6. High starting torque.
7. Speed control over a wide range, both below and above normal speed.
8. Accurate seedless speed control.
9. Quick starting, stopping.



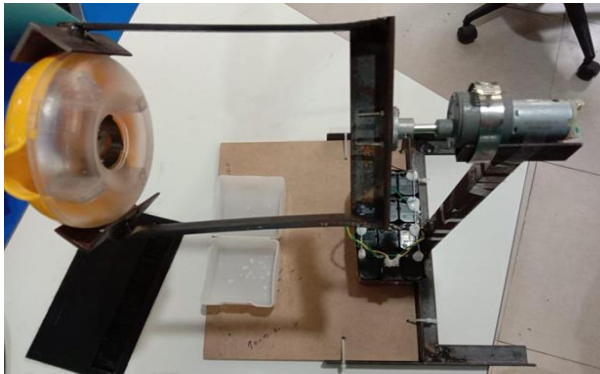
Schematic Diagram And Block Diagram

4. EXPERIMENTAL RESULTS

- > This machine can be run with 12V 4AMP battery power.
- > The battery supply is fed to the ON/OFF switch and switch is connected with DC motor.
- > And corn peeler attached to the rotary mechanism which is attached to the shaft of the DC motor.
- > When the user switch ON the supply then the DC motor will rotate and

Mechanism also rotate which is attached to the shaft of the DC motor. User need to put and hold the corn at the middle hole point of the peeler .when it rotates corn seeds remove and fell down into the bowl.

Prototype



5. CONCLUSION

The Threshing Machine has been proposed for designed, developed and fabricated keeping in mind the constraints and requirements of the Indian farmers. Self-reliance is the major drive of development and vibrant economy. This proposed machine has been designed to be fabricated with the use of locally available materials. The machine is simple, less bulky and the ergonomic considerations in the design would allow for its comfortable use in a sitting posture for it can easily be operated by either male or female. The development made in these machines provides safety from accidents and makes good use for its portability.

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