

## International Journal of Innovative Research in Science, Engineering and Technology

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# Design and Development of Portable Hand Held Cotton Collector to Collect the Cotton from Each Cotton Plant

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**ABSTRACT:** Now a day's our society is facing many problems specially in agricultural field. More time is consumed in collecting cotton by hand and also the owner's have to pay high wages to the labours. Due to this problem we decided to design and make cotton collector. This machine will be use for collecting cotton in less time and lesser efforts. Our machine will work on the basis of vaccum and roller. With the help of rollers cotton will be collected. The collected cotton will be passed to the collection trolley with the help of vaccum.

**KEYWORDS:** cotton, cotton collection method, cotton collector, design machine for cotton collecting, easy method for cotton collecting, remove cotton, portable cotton collector

### I. PROBLEM DEFINATION

In present many farmers are facing many problems while removing the cotton through plant. Also more time is consumed in collecting cotton by hand and also the owner's have to pay high wages to the labours.

### II. LITERATURE SURVEY

#### “JOURNEY OF COTTON MECHANIZATION”

1. **Manual Picking in 1920:** Starting from the early 1920s, cotton was still picked by hand and caused a lot of manual labour; people would go day by day picking the flowers from the plants placing them in bags continuing the traditional cotton picking which was in place.



Fig.1 MANUAL PICKING IN 1920

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2. **Multiple Row Big Basket Cotton Picker:** In the late 90's, as shown in Fig, the six row cotton picker had been introduced with a large basket on the back this new picker made cotton picking much faster and easier as the cotton was just tipped into a module builder where it was pressed.



Fig.2 MULTIPLE ROW BIG BASKET COTTON PICKER

As Per problem we decide to make Portable Hand Held Cotton collector. This portable cotton collector has specific mechanical arrangement so that cotton from each boll can be picked and collect in trolley. In our machine two rollers and one protecting grill are fixed between two aluminium plates. Motor is connected with backside roller. And both rollers are connecting with belt to each other. At last nail is fixed in belts.

## III. OBJECTIVES

“Our objective is to collect the cotton from the plant by lesser efforts and less time”. With the help of vacuum and rollers cotton will be collected. The collected cotton will be passed to the collection trolley with the help of vacuum. This mechanism is helpful to collect cotton speedily.

## IV. WORKING PRINCIPLE

In our machine main parts are roller, belt (with nail), body, motors. Two rollers are connected to each other with the help of belt. when motor starts rotating then both rollers are rotated in one direction. So that cotton is suck (pick) inside with the help of roller and belt. At body's end we connected vacuum inlet pipe. And outlet pipe is connected with storage trolley. With the Help of vacuum pressure cotton will be connected in storage.

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## V. DRAFTING OF PROJECT

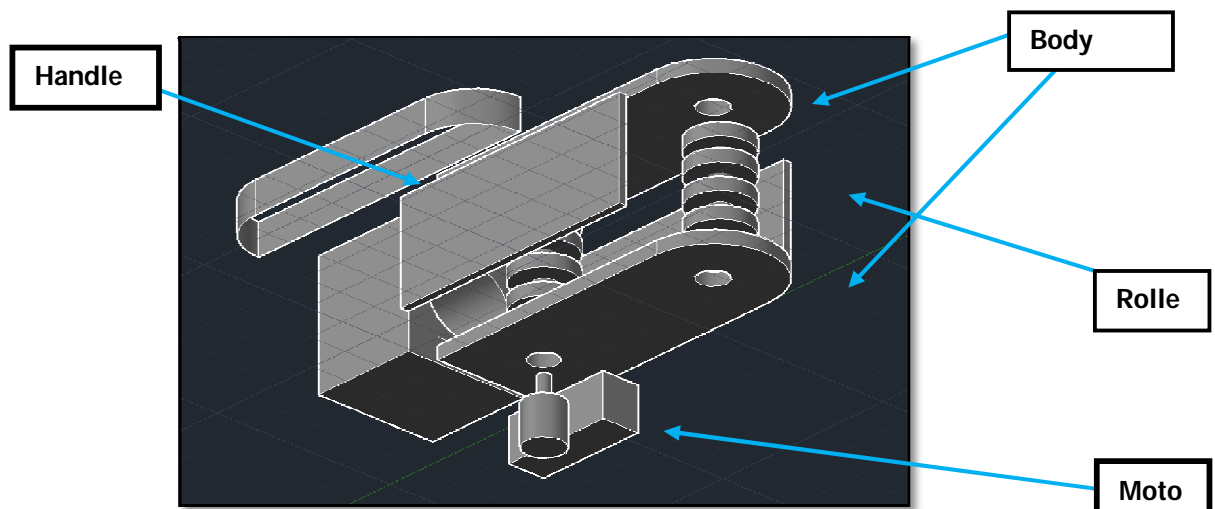


FIG.3 AUTOCAD DRAFTING OF PORTABLE HAND HELD COTTON COLLECTOR TO COLLECT

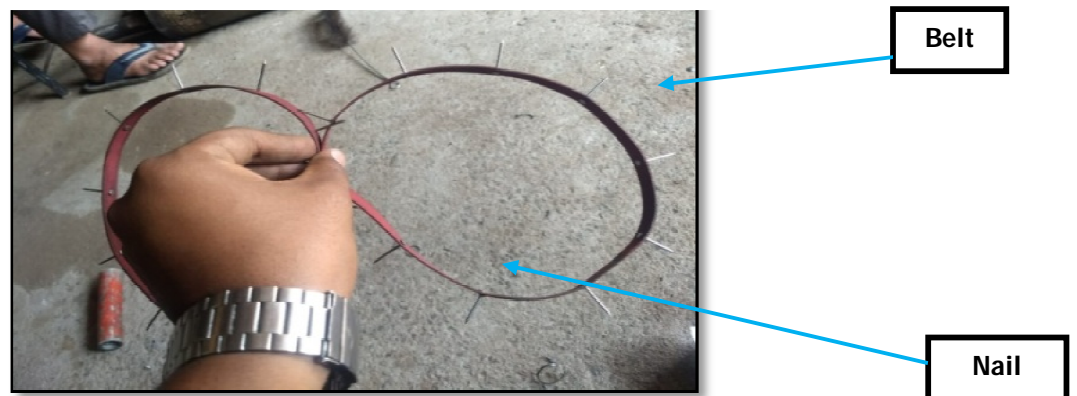


FIG.4 BELT WITH NAIL WHICH IS USE IN PORTABLE HAND HELD COTTON COLLECTOR TO COLLECT

## VI. SPECIFICATION OF PARTS & FINAL PROJECT

a. Specification of motor:

Max rpm	1000-1200
Min rpm	300-400
Motor type	Strong Dc motor 9v

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## b. Specification of rollers:

Diameter	4.4 cm
Length	5 cm
No of grove	3

## c. Specification trolley:

Length	50 cm
Width	2-3 mm
Height	40 cm
Material	G.I SHEET

## d. Specification of wire:

Material	Polymer
Length	1-2 m (approx)

## e. Specification of vacuum:

Voltage	12v
Material	Plastic

## VII. FINAL PROJECT IMAGES



FIG.5 MECHANISM IMAGE OF PORTABLE HAND HELD COTTON COLLECTOR  
TO COLLECT THE COTTON FROM EACH COTTON PLANT

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FIG.6 MECHANISM CONNECTED WITH VACCUM



Fig.5 ACTUAL MODEL OF PORTABLE HAND HELD COTTON

## VIII. CONCLUSIONS

The Design of Cotton picking machine is easy to handle, and it is easy to operate. Also it is of light weight. It will reduce the money required for harvesting process and also reduces the risk of injury. It will provide human comfort while performing the cotton picking operations.

## IX. FUTURE WORK

- We are going to improve the existing design.
- We will reduce the weight of the body.
- In future we will remove the battery and fix solar panel that is a renewable resource.
- In place of trolley portable bag will be fixed to collect cotton.
- We will set a mechanism which will separate cotton and the seeds.

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