International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 06 Issue: 03 | March - 2022 ISSN: 2582-3930

# A Review Paper on Design and Development of Electric Sugarcane Cultivator Machine

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**Abstract: We are presenting paper on "Electric Sugarcane Cultivator Machine" which finds application in agriculture equipment's like, cultivation of sugarcane. As the prices of cultivation and planting of sugarcane by cultivator machine is very high. In India, Sugarcane planting done about 6 to 8 tones seed per hector cause to excess labor required for plantation and the energy consumption for sugarcane cultivation is highest as compared to other crops like, wheat, potato, corn, rice, sorghum . Generally in market petrol or diesel engine cultivators machines are available, initial cost of this machine are too high and it's not easy buy a machine to every farmer's, so we can try to make the solar power operated electric sugarcane cultivator machine which is run by electric motor and it's comfortable to farmer's to use machine with low cost operation. Also, we add some sensors in machine like, 'Arduino Unit' which is used to turned on/off the machine via Bluetooth remote. This project aims to design and fabricate sugarcane planting/cultivation machine for cultivation of sugarcane and to reduce the farmer's effort and to increase in production of vegetative products.**

## I. INTRODUCTION

Today in every country every task has been made faster with the help of machines, but the machines having high initial cost that demands huge investment & expenses. In India agri sector has facing shortage of agricultural labor, Due to shortage of labors farmer's demand cultivation machines. The agri sector has confronting genuine difficulties like shortage of rural work, in top working season as well as in typical time.

In regular strategy for establishing sugarcane sets are established physically in wrinkles, opened physically followed by conveying physically. This is then covered physically or by creature worked grower. In this manner, the cycle is a lot of tedious and work escalated. Numerous Tractor worked sugarcane grower have been created. In any case, the sugarcane grower which are at present accessible in the market are huge in size and worked with the assistance of weighty farm vehicle. Thus, they can't be worked in more modest grounds.

Sugarcane fundamentally developed for its juice from which sugar is made. The greater part of the world's sugarcane is filled in subtropical and tropical regions. A cultivator is a rural hardware utilized for sugarcane development with assistance of cultivator the dirt is hauled through directly or in revolving movement.

## II. PROBLEM STATEMENT

As the prices of cultivation and planting of sugarcane by cultivator machine is very high. In India, Sugarcane planting done about 6 to 8 tones seed per hector cause to excess labor required for plantation and the energy consumption for sugarcane cultivation is highest as compared to other crops like, wheat, potato, corn, rice, sorghum. Generally in market petrol or diesel engine cultivators machines are available, initial cost of this

machine are too high and it's not easy buy a machine to every farmer's. Sugarcane creation is an intricate cycle and can be considered as a component of a few factors. The information on the general significance of the asset inputs impacting sugarcane creation is fundamental for the sugarcane cultivators for presenting helpful changes in their activity at the miniature level.

## III. OBJECTIVES

1. To develop a legitimate seedbed for the yields to be planted into, to cover crop buildup in the soil.
2. To control weeds, and to blend and join the dirt to guarantee the developing yield has sufficient water and supplements
3. The basic role of ploughing is to turn over the upper layer of the dirt, carrying new supplements to the surface.

## IV. SCOPE

1. Using of electric machines for all agriculture sector to reduce pollution.
2. Organic control can be utilized for bugs that harm the soundness of the weed.
3. Plant, creature and miniature life forms might be utilized for obliteration of weeds.
4. This technique requires more opportunity to work so this strategy not appropriate for weed control.
5. As hand weeding is expensive, computerized framework could be practical and mechanical weed control framework can lessen or wipe out the requirement for synthetics.

## V. COMPONENTS OF MACHINE

1. E-Bike 750 watt DC motor–

The supply voltage range is 12-48V with the extremity markers at the foundation of the engine. With the help of electric bike motor we perform the real work at the homestead

Wattage/Capacity = 750 watt

Voltage = 48V

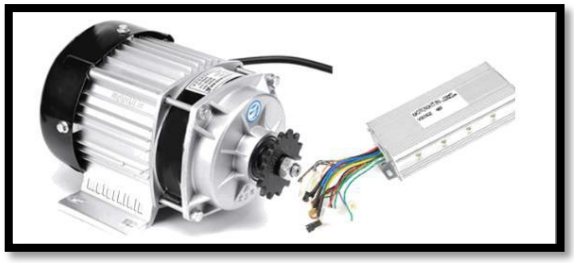

Fig.01 : DC Motor

2. Battery –

It is used to run the electric motor

Capacity = 12V 12Ah

Battery type = Acid lead battery


Fig.02 : Battery

3. Arduino Unit -

It is microcontroller board unit based on ATmega328P microchip technology

Width x Height = 80mm x 20mm

Fig.03 : Arduino Unit

4. Photovoltaic Solar Panel –

It comprise of a few silicon gems, each PV cell is made of various silicon gem sections that are merged together during assembling. Sun powered module changes over inexhaustible light energy taken from the sun into electric energy

Wattage/Capacity = 75 watt

Voltage = 12V

Dimensions = L x W x H = 780 x 670 x 35 mm

Fig.04 : Solar Panel

## VI. ADVANTAGES

1. In different words, it is an extraordinary saver of time and costs on field activities.
2. Because of more modest size, two haggles constructional plans, the dirt turner and weeder becomes one of the lightest yet best homestead power sources.
3. Its tasks are constrained by an administrator through its lengthy handles by strolling behind it.
4. One of the extraordinary highlights of a dirt turner and weeder is that it's both the wheels can complete two positions simultaneously.
5. It makes the dirt turner and weeder push ahead through foothold of its wheel with the ground and simultaneously shift the course as administrator wants.

## VII. LITERATURE SURVEY

**Design and Analysis of Sugarcane Cultivator, C.Arun , S.Dinesh Kumar [1]** - The manual sugarcane development includes greatest work, time and wages. In this situation, the inaccessibility or interest for work become an extremely enormous issue for rancher. Gradually, the work populace is moving from horticultural work to other new crisis areas like materials production lines.

**Design, Development and Fabrication of Soil Tiller and Weeder, Md. Aqib Naque, Akhtar Ali Rizvi, Amogh v. Tijare, Prof. A. B. Tupkar [2] -** The dirt turner and weeder are one of the many ranch automations in advancing soil turner and weeders particularly considering the way that most of ranchers are having little land. It lessens human exertion. The executes are for the most part independent.

**Agricultural Mini Cultivator, Mr. K. Rahul, P. Sundar, B. Sadhik Ameen, K. Venkata Sai Teja, S. Sudheer Kumar Reddy [3] -** Agribusiness is the essential wellspring of the India populace. It assumes an essential part in the financial development of our country. In times past furrows are utilized to mix or culturing the dirt. These days farm haulers are utilized for various developments. The farm truck is a designing vehicle uniquely intended for horticulture purposes.

**Mechanization of Sugarcane cultivation, Javed Ali [4] -** Sugarcane is a significant money crop and developed between 320N to 320 S scope covering in excess of 90 nations of the world. India contributing 19.98% of the absolute world creation is the second biggest maker of sugarcane close to Brazil. In India sugarcane is developed in 4.86 million hectares with yearly creation of 324.91 million tons in the year 2010-11.

**Design and Fabrication of Power Operated Tiller Machine, Auti Omkar , Thorve Snehal ,Unde Akshay ,Wakchaure Suchit , Kolse Chandrashekhar [5] -** Weed control is perhaps the most troublesome attach anagricultural ranch. Three strategies for weed control are normally known in horticultural. These are mechanical, synthetic and organic control. Because of synthetic control strategy soil get contaminated and it is destructive to our body. Natural strategy is less successful than other technique so these strategies are not helpful.

**Design, Fabrication and Performance Evaluation of an Inter-Row Cultivator for Sugarcane Fields, Yuttana Khaehanchanpong, Tofael Ahamed, Tomohiro Takigawa [6] -** The points of this examination were to plan and create a between column cultivator for mounting on a medium-sized farm vehicle (25.3 or 37.3 kW)

for sugarcane fields, and to survey the presentation of the cultivator while reaping is directed either the hard way or with a sugarcane reaper. Besides, this study was likewise intended to evaluate the exhibition of the cultivator in blending sugarcane deposits in the field.

## VIII. CONCLUSION

The outcome from this above project results are confirmation of much productivity, less tedious, laborer agreeable machine separate to the ordinary technique for plowing. It guarantees you of greatest work finished with least work exertion.

## IX. REFERENCES

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[6] Design, Fabrication and Performance Evaluation of an Inter-Row Cultivator for Sugarcane Fields, Yuttana Khaehanchanpong, Tofael Ahamed, Tomohiro Takigawa