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## POTATO HARVESTER

Dhtuma Patel<sup>1</sup>, Bhargav joshi<sup>2</sup>, Hanik Patel<sup>3</sup>, Vatsal patel<sup>4</sup>, Kavin Mevada<sup>5</sup>,

<sup>1</sup>Mechanical Department, AIT

<sup>2</sup>Automobile Department, AIT

<sup>3</sup>Automobile Department, AIT

<sup>4</sup>Automobile Department, AIT

<sup>5</sup>Automobile Department, AIT

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**ABSTRACT** - This study aimed to developed a multipurpose digger for harvesting potatoes as well as separating from soil surface with minimum losses, mechanical damage. Potato harvester is developed by adding a successful vibrating separating mechanism that should base on separating potato with minimum losses and damage.

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**KEY WORDS**- Automobile harvester, potato, digger, soil.

### I. INTRODUCTION

#### A. PROBLEM STATEMENT

By traditional harvesting process, we can harvest 2-acre potatoes in 4 days so it is highly time consuming and low efficient. At the time of harvesting, the harvesting process take to more time so potato harvester are machines design for potato harvesting. This machine can finishing mining, soil and potato separation in one time and can harvest the potato the potato stamps. It is different operative machine. This is very efficient and also decrease damages of potatoes during harvesting.

#### B. OBJECTIVE

- To find the composition of the potato ridges
- To give proof of separation mode for soil.
- To test qualitative parameter of the alternative riddling devices in agriculture field.

#### C. SCOPE

Now a days, the automation of agriculture is need of time. By different ways we harvest potatoes in the field of 2 acre in about 4 days but our project harvest 2-acre potatoes in 10 hrs which is very efficient and time saving. In future this project is use for any type of harvesting like sweet potatoes.

#### D. METHODOLOGY

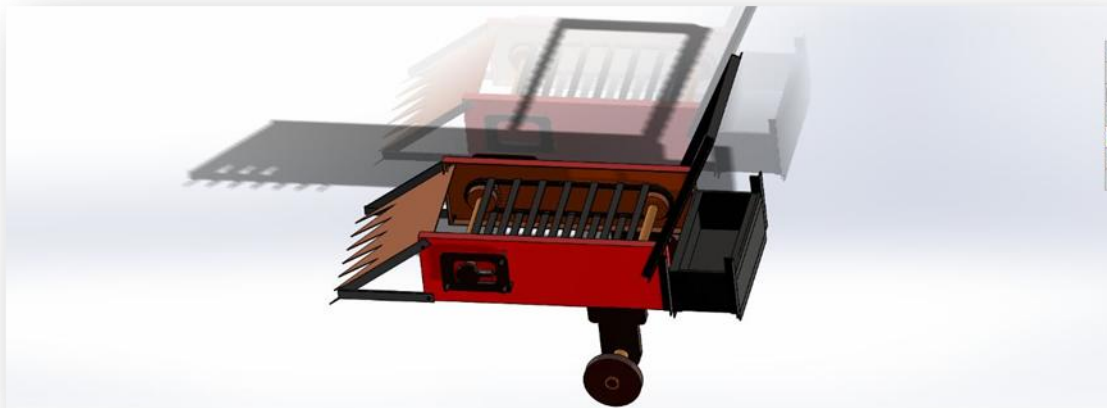
- This project is defined how we can atomies the potato harvesting in simple way and simple mechanism.
- The potato harvester digger the potatoes by the blades. This machine harvest the potatoes by lifting the potatoes from the bed using a share. soil and potatoes are move on to a series of webs where the soil and potatoes are sieved out and the potatoes are separated from the soil.
- Several fields and vegetable crops, from tubers and roots below the surface. Those crops could be termed root crops so they may be classified according to the strategic importance in to major and minor root crops. the major roots are potatoes beets for potatoes. Potatoes and peanuts consider two of the main root crops. Potato is occupying in our country the first position according to exportation vegetable crops, yearly producing about 2.5 million ton, it is exported from about 195-245 ton, it is raised to 425 ton is as a fresh and foreign potatoes to arabinan and European parts, according to **Agriculture Research Centre**.
- Potatoes is considered as from the main summery crops, Egypt is occupied the second position at potatoes production in the quantities production was about 1.6 million ton, India is exported from about 30-34%, to Arabian and European parts, according to **Agriculture Research Centre**. Developing, testing and evolution of agriculture machines are become the main factor to enhance agriculture production, mainly the agriculture machines which tested in some countries is not give the same production which it obtain in another country and that is may be because local conditions and this conditions could be influence the properties of those machines, so developing, testing and evolution those machines again is very inevitable under local condition, harvesting is one of the most critical operation for potato production. Root crops are grown below the surface of the land so it required specially designed machines to digger and separate from the soil. The subject of vibrating diggers has drawn the attention of many research centers

## II. WORKING PRINCIPLE



**Figure 1**

This is the easy mechanism can use in the project. The basic concept is that power transmission from one shaft to another shaft using sprocket and chain but due to more noise and more cost and maintenance we can't use this mechanism in real world.



**Figure 2.**

The flat belt transmits very flow amount of power due to less friction of grip and it is require more space which increase the cost of project. It gives low velocity ratio while power transmit mission and flat belt are joined so drive is not smooth.

## III. ADVANTAGES

- This potato harvester machine can used for harvesting varieties of underground plants on the land.
- The machine is suitable for all kinds of soil, such as sandy soil, clay soil and clod.
- The mechanism is with easy and compact structure and can connect with machine easily.
- This potato harvesting mechanism can harvest the potatoes with the potato vine.
- Less human power requires for operation.
- It can use for multi functional.
- Its low time consuming.
- It completes the operation without the damaging of potatoes on the field.

## IV. APPLICATIONS

In most of potato growing area digging is done with hand tools like khurpa, spade, plow and animal drawn plows. In past years improvement have been made and multipurpose digger. Digger shaker and digger wind drawer have been developed. So, for save the man power and time required for harvesting we design a suitable mechanism for easy to harvest.

- Potatoes harvesting
- Peanuts harvesting
- Beet harvesting
- Sweet potatoes harvesting

## **V. CONCLUSION**

To put it in a nut shell, It is mechanism which separate potatoes from soil, the vibration reaches relative separation speed but cause less damage on potato. Harvesting of potato had a more influence on lifted, uplifted and damage tubers which was not favoured for crop use. The impact of forward speed and chain speed was remarkable on lifted and uplifted tubers. The lifted tubers tended to be improved with increasing the forward speed until 6.3km/hr. while using the forward speed 8.5km/hr was led to the lowest lifted tubers as compared with the other forward speeds.

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