Automated Ground Harvesting Machine Using Image Processing

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Abstract: Agriculture is a main part of India's economy and at present it is among the top two rank makers in the world. This field provides roughly around 52 % of the total number of occupations in India and contributes around 18.1 percent to the GDP (Gross Domestic Product).For a country like India to gain profit it is necessary that rural and mechanical advancement ought to takeplace head to head.In India, the greater part of land used for rural section which produces semi-completed item. Around 65% of individuals rely upon agribusiness as a principle occupation.Since antiquated occasions cultivating is done physically which causes lesser efficiency and additional time requirement.The opportunity has arrived to modernize our cultivating cycle so profitability can be expanded.

The fundamental target of the task is to build up the under grounded plants harvester thinking about the necessities of Indian ranchers. Among the field activities conserned with cultivation, collecting is the most difficult and exorbitant undertaking. Existing ground collectors are too gigantic to possibly be helpful for limited scope ranchers and in situation like multicroping. At first overview of common place ranch field has been done trailed by writing study, static examination, manufacture testing and plan adjustments. The existing harvester accessible currently is financially heavy which just only plucks the evacuated plants not the under established plants.

Keywords: Automated ground harvester , Agriculture Robot , Robotic Arm , Rover , Processor , Controller , Arduino, Irrigation , Tradational cultivating rehearses , Motor, Motor Driver, Pump, Camera.

I. INTRODUCTION

In past half decade the patterns in agtech have been promising with nations like India, USA and China. Agtech is automation of existing cultivating methods utilizing cutting edge modern day technologies using robots. Initially, the principle utilization of Agricultural robots had been in gathering of yields. Nowadays, the Drones set up the universal relentless strategies to simple, brisk and more exact techniques which help in keeping up the same quality of soil and improving harvest quality along with much higher efficiencies.

Agriculture Robots : In agribusiness, the oppurtunities for robot enhanced productivities are much and the robots are showing up on ranches in different appearances and in expanding numbers. Agricultural Robotics is the legitimate multiplication of computerization innovation into bio-frameworks, for example, agribusiness, ranger service, green house, cultivation and so on It is supplanting the ordinary methods to play out similar undertakings, with effectiveness. The technologies in farming is the utilization of robotization in bio frameworks, for example, horticulture, ranger service, and fisheries. Applying automation to agriculture has made a

few progressions to the business while assisting ranchers with saving money and time.

A. Objectives
- To manufacture a working model which is basic, rigid and powerful in mechanism
- Which is basic in mechanism and can be worked by any farmer effectively and it should be effectively convenient.
- To limit the labor required.
- Initially may cost high, but maintanance will be low.
- To simplify the mechanism of underground plants harvesters.

B. Applications
- Crop observing and examination
- Crop weeding and water sprinkling.
- Picking and reaping

C. Advantages
- It can decrease up to 97% of ranchers work.
- Robots can work in exceptionally hazardous conditions.

- Robots can perform works more rapidly than people, so more productivity can be gained.
- Robots are very precise compared to humans.
- Robots don't need to be paid wages.
- Robots can work 24 hours per day, consistently without rest.

II. SIGNIFICANCE OF THE SYSTEM

For quite a long time, Agriculture has been associated with the production of basic food crops. As of now, Agriculture far in excess of cultivating incorporates ranger service, dairy, organic product development, poultry, bee keeping, mushroom, and so forth .

Today, handling, advertising, and conveyance of harvests and livestock products, and so on .Are totally recognized as a feature of current farming? In this way, farming could be alluded to as the creation, handling, advancement, and appropriation of agrarian items. Farming assumes a basic job in the whole existence of a given economy.Agriculture is the backbone of the economic system of our country.

III. LITERATURE SURVEY

Groundnut Farming

- i.   Name of the Village   :Nandibanda
- ii.   Name of the Farmer   : Mallikarjun
- iii. Land area owned   : 5 acres
- iv.   Irrigation Type   : Bore well Irrigation
- v.   Type of soil used   : Red soil
- vi.   Problems in growing
    1. Seed availability: 100-110 kg seed/ha
    2. Cultivation problem :Delay in maturation may occur because of late season drought stress.Long periods   of rain immediately prior to harvest may result in both yield loss and deterioration of quality of groundnuts.

3. Disease problems   : In groundnut, fungi cause seed rots and seedling diseases such as root, stem, wilts, blight, pod root and foliar diseases such as rust and early and late leaf spots.
4. Harvesting problems
    - Availablity of labours on time :Labours are not available in time
    - Cost of Labours for harvesting one acre area : 300 per day
- vii.   Accepting Innovation Help : YES

Onion Farming

- i.   Name of the Village :Nandibanda
- ii.   Name of the Farmer   : Mallikarjun
- iii. Land area owned   : 5 acres
- iv.   Irrigation Type   : Bore well Irrigation
- v.   Type of soil used   : Sandy loamy
- vi.   Problems in growing :
    1. Seed availability : 3000 kg
    2. Cultivation problem :Drainage of excess water is a mojor problem with the flat bed method of raising seedlings.
    3. Disease problems   :Botrytis leaf Blight,purpleblotch,Downymildew,NeckRoot,Onion smut.
    4. Harvesting problems
        - Availablity of labours on time :Labours are not available in time
        - Cost of Labours for harvesting one acre area : 300 per day
- vii.   Accepting Innovation Help : YES

IV. METHODOLOGY

In this part, the proposed block outline shows the overall thought regarding how we will make this undertaking alongside with different peripherals.

In the working of robotized ground harvesting machine. Here is the way our mechanized harvester machine works, when the yields are been planted, the mechanical machine roams everywhere in the field and this machine sprinkles the water to make the crops warm. The development of the harvests will be distinguished by tying the labels for a specific height. so the robot recorgines the yield has been developed and prepared for harvesting and the further more works identified with it.

Here now our machine which is associated with an automated arm functions according to our need. Here now the cutting is done by sprinkles the water with the goal that the soil observes the water and it makes easy for

plucking. The funnel composed structure is been fitted to the automated arm which holds the lower root and pulls it off from the ground. Consequently now our machine is made simple for ranchers in pulling of yields at that point contrasted with manual work.
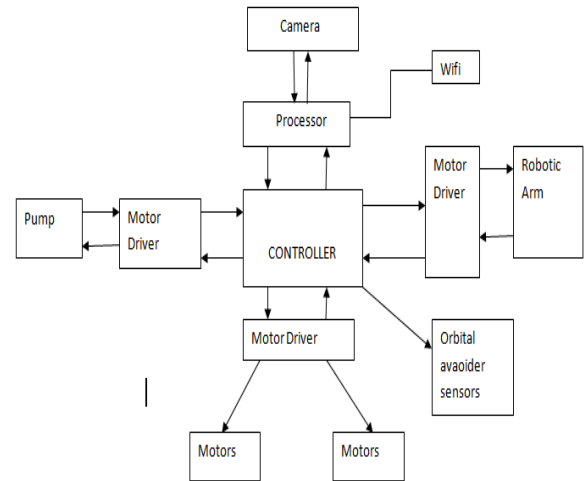
Fig-1 : Block diagram for automated ground harvesting machine

V. EXPECTED OUTCOME

- Exploits highlights of Android stage to help Farmers Significantly.
- Provides an adaptable UI to farmer to control the machine viability.
- It decreases physical work necessity which is a shelter to the farmer as discovering laboures is an exceptionally troublesome employment today.
- The Agribot can work in such a climatic condition also as can work relentless not at all like people.
- It is an onetime venture which lessens the general cultivating cost extensively.
- This Agribot goes about as an entryway to computerized smart cultivation.

CONCLUSION AND FUTURE WORK

Robotization and work saving in agribusiness have been required as of late.However automation and robots for developing yields have not been progressed. We have placed in motorized or automated solutions for decrease our reliance on weighty manual, difficult to-get work.

The robots are not becoming ill or tired, and the time off isn't needed.With higher rates and closer resistances, they

can work with less errors.They make less blunders and work at higher speeds and higher quality.The robotscan diminish the utilization of pesticides by up to 80% of the farm.In various fields, robots are more proficient and can work around trees, rocks, lakes, and different hindrances easily.For specialists, the robots can make occupations that can fix the robots.

The robots can convey results of high caliber and lower the expense of creation. They can be little in size, permitting to gather close yield information and perform mechanical weeding, cutting, showering, and fertilizing.Robotic cameras and sensors are fit for recognizing weeds, distinguishing irritations, parasites or sicknesses, and other pressure. For the most part, the sensors are particular and are simply used to shower on the influenced region.

"Robots give an occasion to supplant human administrators with a decent degree of profitability by giving powerful arrangements".

Up until this point, robots don't generally look or act like the conscious creatures depicted all through science-friction. Or maybe, these fundamental machines are entrusted with doing basic assignments that support efficiency around the working environment or manufacturing plant. We are still a few days away from a future where robots do more troublesome and significant tasks easily.

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