



A Study on Humanoid Robo for Upcoming Revolution in Growing Agriculture

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Abstract

In India there were a lot of problems facing by the farmers and we can see that the total number of farmers' suicides committed during 2020, maximum 2,567 cases were reported from Maharashtra, followed by 1,072 cases from Karnataka. So we came with an idea that why can't we combine the technology with the agriculture and our generation is also living in an advance technology and the technology is not living but we guys are upgrading with the new software and advanced artificial intelligence. Our idea to launch a humanoid robot in the society that it is very useful to the farmer and the robot can teach the farmers. It shows the oldest methods & techniques of the organic farmer to the society once again.

Key words: - Agriculture, Humanoid robot, Farmers suicide, Organic farming, Artificial Intelligence,

Introduction

In Industrial Automation India it has published an ticle on robotics in agriculture on (08-04-2021) in his article he has mentioned the robots in agriculture can useful for five key elements. Such as robots can do Crop Seeding, Fertilizers & Irrigation, Thinning & Pruning, Weeding & Spraying and Picking & Harvesting. And here the robots also helps the human with testing the soil and monitoring the growth of crop and preventing from infecting the plants.

In start up talky.com (11-02-2022) has published article on robotic farming which is the upcoming revolution in agriculture. In his he has mentioned about the combination of technology with agriculture. In the article has mentioned about the common duties that the robot can perform in the agriculture field such as:-

- Soil analysis
- Phenotype
- Weed control
- Sorting and packing
- Harvesting and picking
- Environmental and monitoring
- Automated mowing, pruning, seeding, spraying.

Agriculture robots have been manufacturing by some company such as

1. Blue river technology
2. Harvest CROO robotics
3. Peat
4. Trace Genomics

5. Frams shots

6. Where

And there are so on companies have producing the robots with the help artificial intelligence which is very useful for our upcoming generation. Because agriculture plays an vital role in our world with out agriculture we cannot survive in this world.

But in this society the farmers are not getting any value for their hard work so i thought to come up an advance technology of robotics in agriculture. There are top 9 robots which are utilized in our cultivation.

Nowadays people across various industries are using robotics to ease out their works like customer service, packaging, shipping; manufacturing and transportation are some examples of industries which will soon hire more robots.

Types of Humanoid Robot

Currently there are 9 robots invented world wide and those are-

- **ECOROBOTIX-** This has GPS, backed up by solar energy the robot uses its camera to target and spray weeds.
- **NAIO TECHNOLOGIES-** It is used to spray weed, have the ability to assist during harvesting and aids as a perfect farm hand using techniques that preserve environment.
- **ENERGID CITRUS PICKING SYSTEM-** It is perfectly helpful for those who have a citrus based agriculture farms. It can pack one fruit every 2-3 seconds. It is cheaper as compared to human labour.
- **AGROBOT E-SERIES-** Its 24 robotic arms has an advanced AI system the E-series cannot only pick strawberries but also identifies the ripeness of the berries.
- **BLUE RIVER LETTUCE BOT2-** These robots are the perfect tools for farmers and their lettuce crops. With its imaging system, it is a popular tool in the agriculture world that attaches itself to a tractor to thin out lettuce fields as well as prevent weeds.
- **AGRIBOTIX-** Drones will play a huge role in monitoring large areas of crops. Agribotix is a low-cost tool for farmers, to collect crop data over time, or in real-time. From taking precise aerial photos to recording video, the company's collection of drones even has sensors that can measure the health of crops.
- **VISION ROBOTIX-** The company has been working on agriculture robotic systems for seven years. The team has used AI-powered robots that can tackle products include a vineyard pruner that images vines and uses a robotic arm to thin plants, as well as an automated lettuce thinner.
- **ROBOPLANT-** This robot has both semi and fully automatic machinery for greenhouse management or protected horticulture. The AI robot is able to take flats of seedlings to separate them and plant them in patterns.

- **PRECISION HAWK**- The PrecisionHawk team creates drones with its host of features, they are the perfect tools for farmers that include artificial intelligence paired with multispectral, hyperspectral, and LiDar technology.

HUMANOID ROBO in agriculture for cultivating the crops and it is very useful for the farmers and the robot is very friendly in nature. The robot can do different types of activities which till now no robots have been did. The robot has been manufactured with the knowledge of agriculture and organic cultivation procedure.

In our upcoming generation we can combine the technology with our agriculture land the humanoid robot can do things like

- Soil testing
- Scan the whole land
- It takes the care of growing crop
- It kills the pesticides with the help of organic manner

Not only this it can educate the illiterate people by projecting the videos and showing the picture to unskilled framers. The robot can be charged with the help solar and also with the help electricity. It suggest the farmers that which type of crop is suitable for cultivating the crop in the particular.

After completing the cultivation when the crops comes to the hands of the farmer then the robot also suggest the goods should be sold at what price means it can predict the price of the crop.

The humanoid robot is the advanced technology which is very useful for farmers in the coming time. The robot takes cares the agriculture like a child in the mothers womb. The humanoid robot uses the organic method to cultivate and kills the pesticides if the crop is effected.

Literature Review

The agricultural robot market size is predicted to rise at an intense 21.1 billion USD between 2017 and 2025, from USD 4.1 billion in 2017 to USD 25.2 billion in 2025. The compound annual growth rate (CAGR) is expected to increase at 25.34% between the period. The technology has developed greatly in the past few years and due to its high demand for the Toughest Agriculture Challenges, the technology is expected to grow at a fast rate in the coming years (Markets and Markets, 2017)

ORGANIC FARMING

Techniques of Organic farming

There are some techniques by which organic farming in India practiced. Check out below the methods of organic farming in India.

1. Soil Management

Soil Management

Soil management is the primary technique of organic farming in India. After cultivation, soil loses its nutrients, and its fertilizer goes down. The process in which soil is recharging with all the necessary nutrients called soil management. Organic farming uses natural ways to increase the fertility of the soil. It uses bacteria, available in animal waste. The bacteria helps in making the soil more productive and fertile. Soil Management is first in the organic farming methods list.

2. Weed Management

Weed Management

Organic farming's main aim is to remove the weeds. Weeds are the unwanted plant, growing with the crop. Weeds Sticking with nutrients of the soil affected the production of the crops.

There are two techniques which give a solution to the weed.

Moving or cutting – In this process, cut the weed.

Mulching – In this process, farmers use a plastic film or plant to residue on the soil's surface to block the weed's growth.

3. Crop Diversity

Crop Diversity

According to this technique, different crops can cultivate together to meet the growing demand for crops. Crop diversity is one of the most famous organic farming techniques in India.

4. Chemical Management in Farming

Chemical Management in Farming

Agricultural farms contain useful and harmful organisms that affect farms. To save crops and soil, the growth of organisms needs to be controlled. In this process, natural or fewer chemicals, herbicides, and pesticides used to protect soil and crops. Proper maintenance is required throughout the area to control other organisms.

5. Biological Pest Control

Biological Pest Control

In this method, use living organisms to control pests with or without the use of chemicals. These techniques of organic farming are followed by Indian farmers in agriculture.

Conclusion

Recent research on the agricultural impacts of climate change has primarily focused on the roles of temperature and precipitation. These studies show that India has already been negatively affected by recent climate trends. However, anthropogenic climate changes are a result of both global emissions of long-lived greenhouse gases (LLGHGs) and other short-lived climate

pollutants (SLCPs). Two potent SLCPs, troposphere ozone and black carbon, have direct effects on crop yields beyond their indirect effects through climate; emissions of black carbon and ozone precursors have risen dramatically in India over the past three decades. Here, to our knowledge for the first time, we present results of the combined effects of climate change and the direct effects of SLCPs on wheat and rice yields in India from 1980 to 2010. Our statistical model suggests that, averaged over India, yields in 2010 were up to 36% lower for wheat than they otherwise would have been, absent climate and pollutant emissions trends, with some densely populated states experiencing 50% relative yield losses. The number of farmers who committed suicide dropped to 5,579 in 2020 as compared to 5,957 in the previous year.

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