

Semi-Automatic Robot Design for Image, Video capturing and Testing of Moisture, Acidity or Alkalinity in Soil

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Abstract - The design and completely equipped with requirement of semi-automatic unmanned ground vehicle. The vehicle is attached with Image & video camera for surveillance purpose also has a joystick for controlled the motion of the vehicle. The video is recorded and we can saw after sample is collected. The vehicle also has testing equipment for testing a soil. The equipped (UGV) has the potential application. In some of the countries like India, Africa Agriculture is important source of economy. Still we have to fail to improve our technique and make profit to farmers. Reason behind that we don't have a major knowledge about agriculture & and various properties of soil that can improve our crops. In country there is a crores of sample taken and analyze them but some of the properties are difficult to find.

Key Words: Unmanned Ground Vehicle, Surveillance, Semi-Automatic robot.

1. INTRODUCTION

In remote areas and agriculture sector soil sampling by semi-automatic robot vehicle or unmanned vehicle, surveillance has a contribute a lot in recent years. it should possess some of the necessary equipment to solve to solve the problems arise while sampling. It deals with the semi-automatic robot vehicle to overcome the all problems. For soil sampling purpose we need an arrangement to take the soil for laboratory to analyze the soil properties useful for the crops. Some of the remote areas. It is difficult to men to reach the site where we can work on soil sampling or some other necessary surveillance. So we need to design and implement all necessary equipment attached with the vehicle. Semi-automatic robot vehicle is a semi-automatic operation soil testing arrangement. Which can measure some important properties of soil? It helps to improve the fertility in the soil. It can operate with joy stick or manually operated controller.

It is simple in use and eco-friendly. We can see the result after operation by camera which is mounted on the vehicle

2 LITERATURE REVIEW

E.valjaots , H. Lehiste , M. Kiik and T. Leemet:

This author gives brief description of Land based robot technology has considerable potential for usage in different areas of agriculture and other versatile areas. Here a robot can soil sampling device is being introduced. Unmanned mobile technology implementation for soil sampling automation is significantly increasing the efficiency of the process. This automated and remotely controlled technology is enabling more frequent sample collection than traditional human operated manual methods. In this publication universal mobile robotic platform is adapted and modified to collect and store soil samples from fields and measure soil parameters simultaneously. The controller navigates and operates automatically with dedicated software and remote server connection. Mechanical design of the soil sampling robotic device and control software is introduced.

J.Jayaprahas, S.Sivachandran, K.Navin, K.Balakrishnan :

This paper incorporates today's technology for agricultural farming, an effective effective real-time embedded based Soft Analyzer can be developed with a fast and reliable automated system that is used to study various soil nutrients with the help of pH values. According to the availability of nutrients, special crop and suitable fertilizer plantation will be recommended.

K. Spandana, Sai Supriya KPL

The concept of smart agriculture is a reality because it develops from a conceptual model for crop improvement at different stages. Previously agriculture is the plantation of

plants that are used to preserve and grow human life. Nowadays, smart agriculture has entered the film globally. Smart agriculture is no use for convenient sources. Due to the use of sustainable soil, freshwater use and the use of pesticides and pesticides in the crops, crop production increases, and farmers income help. The first developed sensor kit will check the soil type and soil quality. Different tests are done on land like bulk density test, respiratory test, humidity inspection, and water quality checks are needed. Considering the results obtained by the above tests, the device indicates a crop to the farmer and it also helps him to keep the crop. IOT plays an important role in maintaining the service of smart agriculture.

4. CONCEPTUAL DESIGN

Functions of the semi-Automatics Robot:

1. To check the Acidity/ Alkaline of the Soil.
2. To check the Moisture Content in the soil.
3. To nearby surveillance to capture picture and Video.

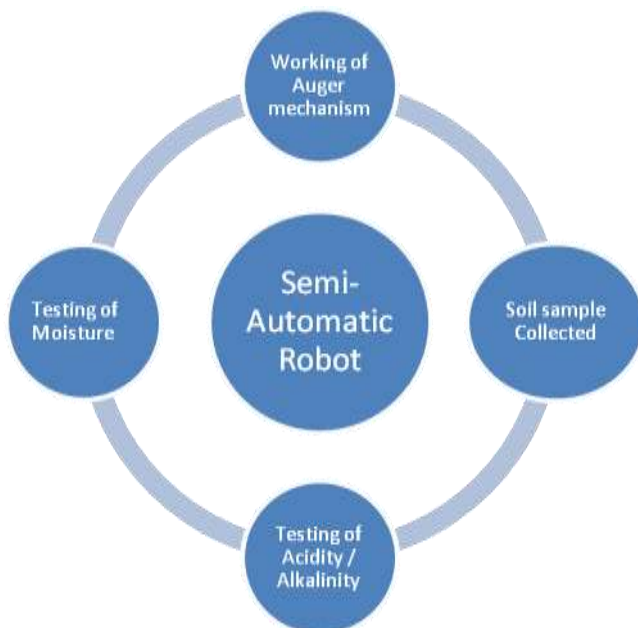


Fig.1 The Conceptual Design

Operation:

Semi-Automatic robot Vehicle: Consist of the vehicle which assists For Working of all operation, (Testing of soil to find out Acidity/ Alkaline, Testing Of Moisture content In Soil).

Auger Mechanism: On Semi-Automatic robot Auger Mechanism is mounted. Auger mechanism is for digging the soil And Soil sample is collected.

Moisture Kit: To Check the Moisture in the soil

4. CONCLUSIONS

The work accomplished comprises of proposing a new semi-automatic robot which is capable of To check the soil is Acidic or Alkaline & also check the moisture content in the soil, extracting the samples of soil. It is also take a less time as compared to the sample check in the laboratory.

On the spot the results is obtained.

The important points:

- 1.To check the acidic / alkaline content in the soil.
- 2.To Check the moisture content in the soil.

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