**CHAPTER 1**

**INTRODUCTION**

**1.1 INTRODUCTION**

India record of progress in agriculture over the past four decades has been quite impressive. The agriculture sector has been successful in keeping pace with rising demand for food. The contribution of increased land area under agricultural production has declined over time and increases in production in the past two decades have been almost entirely due to increased productivity. Contribution of agricultural growth to overall progress has been widespread. Increased productivity has helped to feed the poor, enhanced farm income and provided opportunities for both direct and indirect employment.

The success of India‟s agriculture is attributed to a series of steps. The major sources of agricultural growth during this period were the spread of modern crop varieties, intensification of input use and investments leading to expansion in the irrigated area. In areas where „Green Revolution‟ technologies had major impact, growth has now slowed. New technologies are needed to push out yield frontiers, utilize inputs more efficiently and diversify to more sustainable and higher value cropping patterns”.

In India there are 70% people dependent on agriculture. So we need to study agriculture. Innovative idea of our project is to automate the process of sowing crops such as sunflower, baby corn, groundnut and vegetables like beans, lady‟s finger, pumpkin and pulses like black gram, green gram etc & to reduce the human effort and increase the yield. The plantation of seeds is automatically done by using DC motor. The distance between the two seeds are controlled and varied by using Microcontroller. It is also possible to cultivate different kinds of seeds with different distance. When the Robot reaches the end of the field we can change the direction with the help of remote switches. The whole process is controlled by Microcontroller. Seed plantation is our day to day life is done by tractor in farms. The conventional method for seeding is the manual one. But it requires more time & the man power shortage is faced continuously.

**1.2 GENERAL OVERVIEW**

There are various seed sowing methods used for agricultural purposes out of which some are cost effective but required more man power. In Agribot, we are trying to reduce the cost as well as human dependency by making it fully automated.

The author states that traditional seed sowing includes broadcasting manually, opening furrows by a country plough and dropping seeds by hand, dropping seeds in the furrow through a bamboo/meta flannel attached to a country plough and for sowing in small areas dibbling i.e., making holes or slits by a stick or tool and dropping seeds manually (by hand). Thus traditional seed sowing has limitations like uniformity in the seed distribution cannot be achieved by manual planting, poor control over depth of seed placement so that labour requirement is high and during kharif sowing, placement of seeds at uneven depth may result in poor emergence. The innovative idea about this project is that agribot is not only performing various operations related with farming but also monitoring all the actions related with the movement of agribot like obstacle detection , battery voltage and panel voltage and compass sensor output.

**1.3 PROBLEM STATEMENT**

In the present scenario most of the countries do not have sufficient skilled man power in agricultural sector and that affects the growth of developing countries. Therefore farmers have to use upgraded technology for cultivation activity (digging, seed sowing etc.). So it‟s a time to automate the sector to overcome this problem which in turn will also eliminate the requirement of Labors and also avoid the wastage of seeds.

**1.4 PLAN**

The seeds are been sowed in a proper sequence which results in proper germination of seeds. This automatic way of sowing seeds using a robot reduces the labour requirement. Here the wastage of seeds is also been reduced to a greater extent. This system has been developed for the sowing of seeds in an automatic way.

Here with the help of a robot the seeds are been dispensed in the soil in a proper sequence hereby reducing the wastage of seeds. The planting process of the onion crop only has been implemented by using this Seed Sowing V robot autonomously. This robot will help the farmers to do the farming process efficiently.

**1.5 PROBLEM MOTIVATION**

As we are interested in Embedded Electronics based projects and there are many advantages of the embedded system as well in spite of the electronics based projects. We can control the speed of the DC motor which is an electrical component by using a delay in the source coding.

We are motivated for doing this project because it is an autonomous agricultural based project and here we get to deal with the controller, its interfacing with the dc motors, interfacing with the ultrasonic sensor, a linear actuator which is used for opening and closing of the valve required for the dispensation of seeds and so on.

**1.6 DESIGN**

In this multipurpose seeding machine equipment consists of cylindrical shape container in which the seeds can fill. The container is attached on the three wheeled carrier assembly. It consists of metering plate bevel gear mechanism and two holes at the bottom depending on seed size. The working as plate will rotate in container when the bottom holes of container and meter plate hole coincide seeds will flow through pipe to soil. Here the metering plate gets rotating motion by bevel gear assembly and the bevel gears get the motion by rear wheels with the help chain and sprocket assembly.

**1.7 REPORT OVERVIEW**

Further the report includes different portions related to the working of different components used in our project, their working, functionalities in the circuit, techniques, problems faced in making the project and the solution of their problems, software used for different purposes (like programming, software designing), recommendations, future improvements, etc.