



Agriculture System for Seed Distribution for Autonomous Farming Using PIC

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Abstract: In this paper we shows improvement in agriculture processes like automatic sowing of seeds on ploughed land by using robot. We are going to implement a robotic vehicle having four wheels and controlled by DC motors. The seed sowing mechanism is placed on the vehicle to plant the seeds in uniform manner. The autonomous agriculture robotic system gives us the chance to developed advance agricultural equipment based on tiny smart machines. The machine will cultivate the farm area by considering particular rows and specific column at specific distance depending on different seeds. The problem of obstacle detection will also be considered, sensed by infrared sensor. Forward movement of the machine can be defined by specific time delay to micro-controller. Movement of the vehicle can be obtained with the help of position encoder circuit, which is fixed at one of the wheel. The programming of micro-controllers is done by assembly language. The whole mechanism, processing and controlling are designed with dc motors, sensor and encoder circuit. The performance obtained through activation unit is also presented.

Keywords: Autonomous vehicle, seed planting mechanism, obstacle detection.

I. INTRODUCTION:

In India, most of people are dependent upon Farming. As compared to other fields development in agriculture system is less. So, it is necessary to make some development in this field. A farmer with pair of bullocks can be changed by manned tractors. Because of this the man power can be reduced. To increase the efficiency man-less tractors can be invented. But they failed to reduce the complexity of real world. To overcome this problem automated compact robot can be introduced to obtain specific requirement.

This paper presents development in agriculture system by considering a small robot which will work automatically on micro-controller. It consists of Infrared sensor to detect any obstacle on the way of vehicle. It has encoder IC which is mounted at wheel to get exact 90 degree turning.

By defining delay, we can get specified distance travelled by robot. Seed planting mechanism can be done by DC motor which is fixed on the top of the vehicle. Rotating mechanism is used to have equal distance between seeds. Feedback mechanism is used to drive the motor. It works when the vehicle is going forward in straight direction and it will not work while rotating the vehicle and changing the path.

II. METHODOLOGY

In this project, seed sowing system for various seed is represented. As we know that, the distance between two seeds is different for each seed. The method of seed planting in cultivated land is base on row per column with specific standard distance. The distance between seeds can be adjusted by using different wheels depending upon number of teeth. As we change number of rotations of moving wheel mounted on robot for seed sowing, we can get different observations for seed placement. The distance travelled by golem and distance at intervals 2 rows are often set by defining delays to the microcontroller victimization programming.

The hardware implementation of project includes following devices that four 100rpm dc motors drive the vehicle. It includes one 10rpm dc motor for seed planting mechanism, IR sensor, Buzzer. The dc motors of the vehicle enforced to rotate the vehicle in forward direction. These dc motor will rotate dextrorotary for specified delay. While rotating the vehicle in forward direction if there's any obstacle occurred before of car, it are often detected by IR sensing element that is placed at side. Once any obstacle is occurred IR sensing element can offers the signal to microcontroller. At now, vehicle can stop and buzzer can rings till the obstacle is got rid of. After such as time delay, the golem will mechanically amendment side left or right with ninety degree angle. Precise ninety degree angle will be prevailed by position encoder. The gap within two rows is mounted. Per this machine can travel the gap and it'll rotate once more ninety degree in left or right direction. That the machine can take 1800 address move into second row. Throughout second row, the rotating directions completely different .

III. MISSION DESIGNING OPERATION:

A goal may be a system. It's unremarkably associate mechanical device system conveys a way that it's agency of its own. It's a tool that mechanically operated difficult task owing to programming.

Path controlling Mechanism:

In agriculture atmosphere loaded vehicle can't move swimmingly on the rough road therefore, this machine is meant, that operates on dc motor, during this project. Figure two shows dominant path of car it ought to be predefined. Firstly, the vehicles drives in line to 1st column and when finish of plowed land, the vehicle rotate 1800 and choice of second column is finished and proceed more. Once obstacle is detected before of car associated it turns by ninety degree towards right and detects for an additional obstacle an turns by ninety degree towards right or left depends upon condition as explained

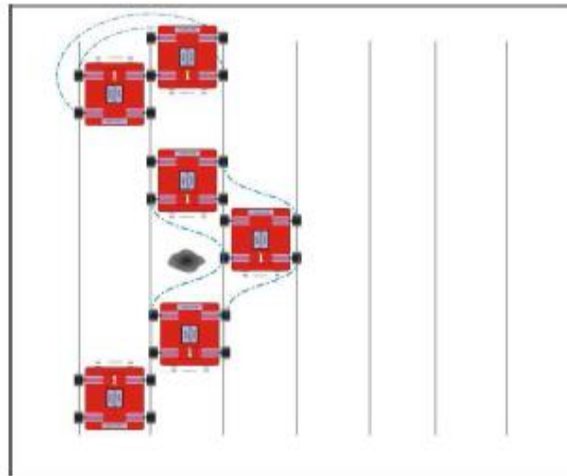


Figure 1: Path dominant mechanism

IV. RESULTS AND DISCUSSION:

The results of this project are often experimented on completely different seeds like jawar, soya, and wheat by considering completely different variety of teeth to the wheel. After we are inserting completely different seeds, the distance between 2 seeds can vary per the need of user. Therefore this technique is versatile. Whereas taking result, the performance of car in plowed land with and while not load are often thought-about.

V. CONCLUSION

This paper has conferred that the wants and progress created towards achieving a future exactness advanced farming system. The assembly is developed for sowing seeds on plowed land mechanically thus reduces efforts. The project includes creating associate assembly of car and its movement, wherever as second mechanism is making ready a seed bed on plowed land. The different mechanism. The primary mechanism controller is employed to regulate and observation the method of system movement of car. It's monitored with facilitate of DC motor and servo motor. This technique additionally sight obstacle in path before of the vehicle by infrared sensing element. It's additionally used for sensing rotating position of car at the top of row. Because of no man efforts required and high speed of operation, it has scope for future expansion.

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