



SOLAR POWERED AUTOMATIC COW DUNG CLEANING SYSTEM FOR COWSHED

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ABSTRACT

In today's scenario farmers are having hard time in maintaining the cow shed to clean the cow dung they have to spend more time or they have to hire workers for more money. So in this paper we suggest a mechanism which is used to collect the cow dung and also used to clean the area. We use cow dung cleaning machine which runs under the power generated by solar. By using this process automatically human power will be saved.

Keywords:-Microcontroller, limit switches, dc motor, dc pump, solar panel, battery.

I. INTRODUCTION

Traditionally cow dung has been used as a fertilizer, though today dung is collected and used to produce bio gas and many application. In today's days farmers are having hard time in maintaining the cow shed because of less time and lack of man powered. To clean cow dung they have spent more time. So we suggest this mechanism is used to solar powered automatic cow dung collecting cum cleaning system. In this system we have used controller system to collect the cow dung. They are mechanical and electrical components are used in this project such as limit switches, DC motor, DC pump, microcontroller, and drag, rack and pinion.

II. LITERATURE REVIEW

1. "Solar powered automatic cow dung collection cum cleaning system" by dinesh r, balakrishna k, saseedharan k, sukumarr. In this research they include various component to perform the machine automatically with the use of limiting switches which is controlled by AT89S52 microcontroller and is powered by solar energy
2. "Automated customised cowshed cleaning system" by gurucharanshinde ,hemanthkumar r, hemanthkumar s , kiran p naduvimani, uday m. To reduce the labour cost and to maintain the hygiene and cleanness they proposed automatic cleaning cowshed in the dairy farm with a press of button where they applied rack and pinion mechanism powered by dc motor which is controlled by limit switches to clean the cowshed.

III. METHODOLOGY

Our project consist of a chain drive mechanism which is responsible for the movement of drag front and back upon the frame. The chain drive is controlled by DC motor to obtain constant torque. Drag is a mechanical device used to collect the cow dung as shown in fig1.

When dc motor get starts the drag moves along with chain drive when it touches L1 (limit switch),the drag will move forward .during that motor cow dung are collected and moved to the pit by an external piston force. When the drag touches L2 the DC motor get reversed. So the movement of the drag will be in reverse direction. During that time drag device which activates to push the dung to pit. At the same time DC pump allow the water to flow through the pipe and water is splashed on the frame at high speed. The reversed clean the surface will help of sponge at the end of drag. This whole system was controlled by microcontroller where program of whole process is stored. This is the brain of the whole system .all these electronic devices get energized from battery. The battery is energized by means solar of energy. Thus the cow dung is cleaned in a shed without any manpower but by mean of solar energy.

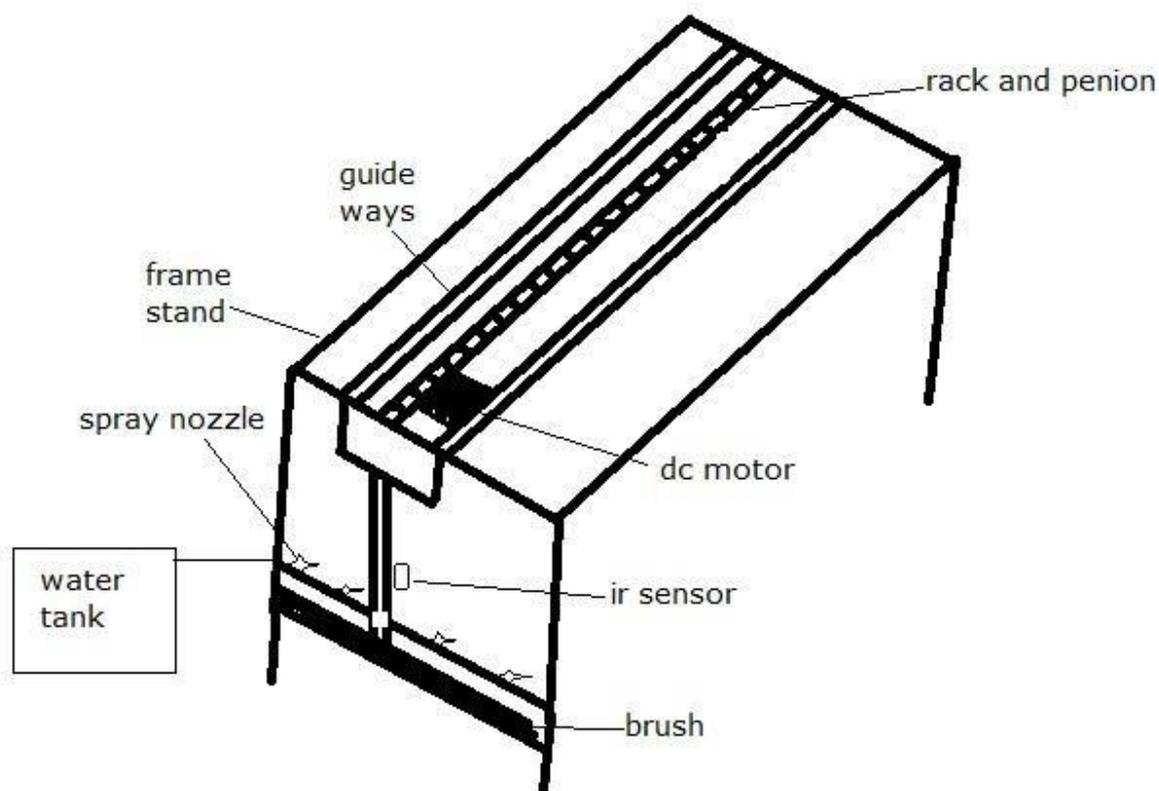


Fig1. Working principle

IV. MAJOR COMPONENTS

The major components of solar powered automatic cow dung cleaning system for cowshed are written below:-



1. Battery
2. Permanent magnet D.C motor
3. rack and pinion
4. Frame
5. Microcontroller
6. Limit switches
7. Solar panel

V. RESULT AND DISCUSSION

Hence we have conducted our project successfully by using rack and pinion mechanism operated device to manage the waste material in domestic field and dairy factories. With the help of this project we get the idea about the working principle of microcontroller, limiting switches, relay, dc motor, dc pump and many other components. The main objective of this project is to reduce time, water and labour, which is very important in today's world. In this project 10watts capacity of solar panel is used to charge the battery(12volt),which runs the dc motor of capacity 12v,30rpm.Thus drag is moved to and fro motion with the help of rack and pinion mechanism, which is controlled by microcontroller. The machine is consumed 2watts of power while running for 1hours.

VI. CONCLUSION

To help farmers by reducing the problem of cleaning waste at the shed we suggested the mechanism "solar powered automatic cow dung cleaning system for cowshed". This types of project can be mainly implement in the dairy farming for instant and rapid cleaning of the surroundings of farm and it will save water as well as human labour or human power. Only it requires skilful operator for controlling for operation.

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