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SOLAR POWERED AUTOMATIC COW DUNG COLLECTING CUM CLEANING SYSTEM

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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.
Key words: limit switches, dc motor, dc pump, microcontroller, solinoid valve.

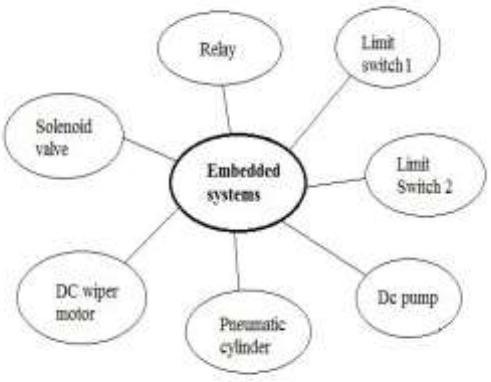
I. INTRODUCTION

Traditionally cow dung has been used as a fertilizer, though today dung is collected and used to produce bio gas. In today`s scenario farmers are having hard time in maintaining the cow shed. To clean cow dung they have spend 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, solenoid valve, and drag.

II. LIMIT SWITCH

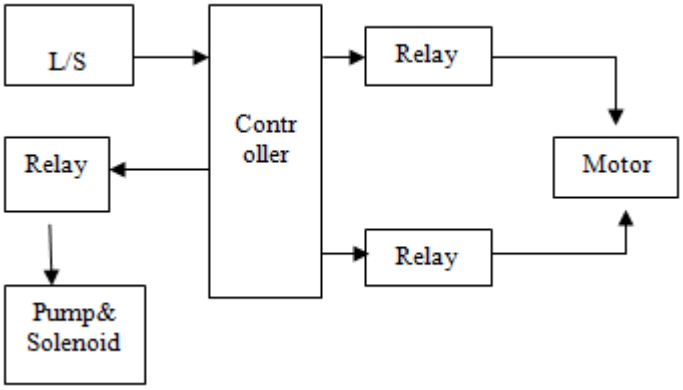
A mechanical limit switch interlocks a mechanical motion or position with an electrical circuit. A good starting point for limit-switch selection is contact arrangement. The most common limit switch is the single-pole contact block with one NO and one NC set of contacts; however, limit switches are available with up to four poles. Limit switches also are available with time-delayed contact transfer. Other limit switch contact arrangements include neutral-position and two-step.

III. EMBEDDED LAYOUT



Embedded system design calls on many disciplines

IV. BLOCK DIAGRAM

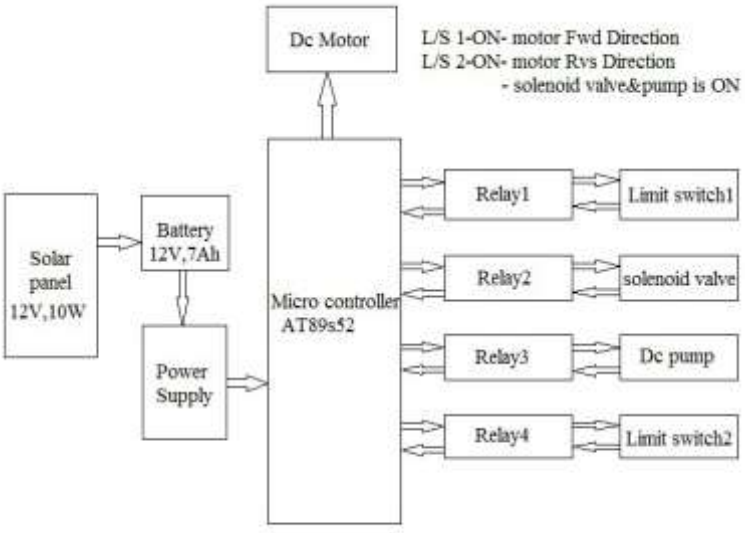


V. THE PROPOSED MODEL

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. 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 solenoid is powered using ``electromechanical device`` which activates the piston 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 an 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.

VI. SCHEMATIC DIAGRAM



Schematic Diagram

VII. MICROCONTROLLER

The AT89S52 is a low-power, high-performance CMOS 8-bit microcontroller with 8K bytes of in-system programmable Flash memory. The device is manufactured using Atmel'sconverter, transforms the analog output of the multiplexer to an 8-bit digital word. The output of the multiplexer goes to one of two comparator inputs. The other input is derived from a 256R resistor ladder, which is tapped by a MOSFET transistor switch tree. The converter control logic controls the switch tree, funneling a particular tap voltage to the comparator. Based on the result of this comparison, the control logic and the successive approximation register (SAR) will decide whether the next tap to be selected should be higher or lower than the present tap on the resistor ladder. This algorithm is executed 8 times per conversion, once every 8-clock period, yielding a total conversion. When the conversion cycle is complete the resulting data is loaded into the TRI-STATE… output latch. The data in the output latch can then be read by the host system any time before the end of the next conversion

VIII. SOLAR GRID

Expose the cell to light, and the energy from each photon (light particle) hitting the silicon, will liberate an electron and a corresponding hole. If this happens within range of the electric field's influence, the electrons will be sent to the N side and the holes to the P one, resulting in yet further disruption of electrical neutrality.

This flow of electrons is a current; the electrical field in the cell causes a voltage and the product of these two is power.

FIG ELECTRONIC CONTROLLER

IX. CONCLUSION

To overcome the problem of farmers at the shed during the cow dung cleaning we introduce the Mechanism "Solar Powered Automatic Cow Dung Collecting Cum Cleaning System" which runs under the solar power.

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