International Journal of Research in Engineering, Science and Management
Volume 4, Issue 4, April 2021
https://www.ijresm.com | ISSN (Online): 2581-5792

A Review On Automatic Blackboard Cleaner

S. Vignesh[1*], K. Vinith[2], K. Mouleswaran[3], H. M. Sanjay[4], M. Logeshwaran[5]
[1,2,3,4,5]*Department of Mechanical Engineering, Sri Eshwar College of Engineering, Coimbatore, India*

***Abstract*: The growth of technologies requested higher performance machines to carry through human needs in the market. This project is implemented to make human work simple and can reduce the use of human power because of its potential applications. In this paper, by using a combination of different mechanisms of operations a design for an automated board duster has been proposed and fabricated. This project is helpful in the cleaning of the board along with various positive impacts and it will reduce various health hazards to a user which they encountered during cleaning, the tiny dust particles from the board that comes in direct contact with eyes nose, skin. The main objective of the present automatic blackboard duster is to provide an attachment for blackboards in the form of a power-driven erasing apparatus which can be set in operation by a switch, thus eliminating the drudgery of manually cleaning blackboards.**

***Keywords*: Blackboard, Duster, Cleaner.**

1. Introduction

It is a methodology that is generally used to clean the blackboard automatically with the help of duster. By the using this automatic system we can save our time. A system for cleaning the board whereas a duster is mounted for longitudinal movement on the board and a hand wheel is mounted that is mechanically interconnected to a drive assembly for producing the movement of the duster.

2. Automation

Automation control is used to various control systems for operating tools such as machine, processes in factories, other applications with minimal or reduced human intervention. Some have been completely automated. The biggest gain of automation is that it saves human power.

3. Literature Review

Amit (2015) reveals the machine utilized for erasing the board was belting drive, predominant it by switches. Thus to erase the board, he/she must return near the board and press the switch. Hence, this makes uneasiness for the teacher. Angle related to beside at the perspective of| along with this erasing was done from one side to an alternate side.

Vivek, et al (2015) reveals the time wasted during the blackboard erasing can be utilized for much better purposes like teaching or attendance. So by doing this we are making things simple and better for ourselves and the future generation. We proposed a system to interface the mechanical feature of the mechanical erasing system with micro controllers so as to enhance it into automation rather than manual. We are using micro controller to interface the board erasing mechanism.

Sathosh, et al (2016) reveals that duster incorporates a track design to allow response of the duster along the side of a stretch board edge. The chain which is associated with duster incorporates a drive motor to impact revolution of a drive the duster placed over the board edge. This applies to new and valuable enhancements and all the more especially to a device whereby boards can be cleaned in a simple and advantageous way. The chief object of the current programmed board duster is to give a connection to chalkboards as a force driven.

Gaurav 2016 uncovers gadget for naturally deleting a blackboard wherein a duster is mounted for longitudinal development on the blackboard and has an engine mounted subsequently that is precisely interconnected to a drive gathering for delivering the development of the duster in an eradicating activity. It will utilize the rack and pinion system to change over the revolving movement of engine into direct movement of pinion.

Rajshree, et al (2019) The smart duster comprise of the long level and vertical x axis, y axis individually likewise comprise of the z axis where it incorporates the actuator for the genuine activity. To cover the whole board in a consistent interaction the outside outline is given to stand the running DC motor. The packaging is given indent on a superficial level which confronting the duster, empowering pull activity to stifle the air suspension of chalk dust. The residue assortment is finished utilizing an exhaust fan with the connection of attractions pack and is gathered in a different chamber.

In 2002 Chirag Shah attempted to make the blackboard framework with the engines to start engine development. The instrument control switches were with the client. The duster moved to and fro to delete the blackboard. When the engine turns over moving the stuff and counter stuff associated with the strung pole which at that point moves the shaft. This blackboard erasing structure was the most reformist record killing part which used cameras and progressed picture planning to erase the erasable markings present on the blackboard. This was gear and programming related structure.

In 1993 Solomon Forst arranged a board erasing system. The blackboard is set in motion with the cleaning mechanical gathering fitted to the divider; it consolidates an alternate duster contraption rather than the cleaning material which was used as a piece of the past models. They suggested that to some degree

*Corresponding author: vigneshs@sece.ac.in

growing the expenses on a complex segment and moreover exclusively gathered vertical erasers we should use the average dusters fitted on an alternate piece which then movers around the whole composing board erasing it.

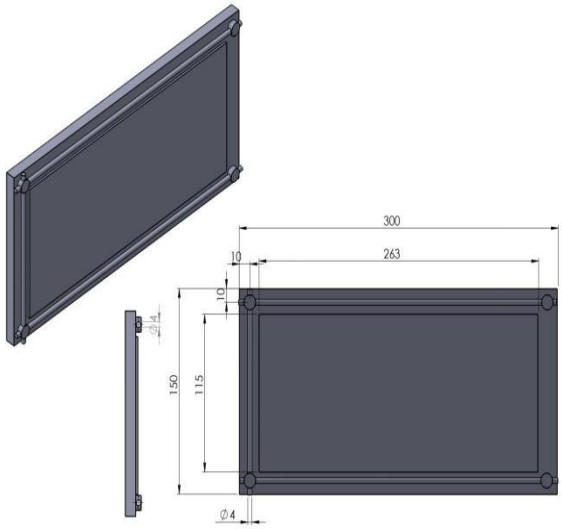

Fig. 1. Dimensions of black board

4. Problem Identification

- The time consuming while rubbing in hand is more.
- The problem of dust in hand erasing affect the human being like skin, eyes and respiratory problems.

A. Solution of the Problem

- In this project time required to erase the board is very less as compared to hand erasing.
- By automation of erasing system, human energy can be saved.

5. Objectives

- Our objective is to design a low cost and user friendly whiteboard or blackboard cleaner machine which can erase the board when a single key pressed.
- Our objective is to make the movement of this machine accurate even if it has been used multiple times and works faster and smoothly.
- As the manual method is time consuming, applying automatic cleaning mechanism will definitely save the significant amount of time

6. Methodology

In the working of automatic blackboard duster as the power is provided to the motor the shaft of the motor starts rotating.

A sprocket is attached to the motor shaft is connected by another sprocket of the steel rod with the help of a chain.

Thus movement of these sprockets rotates the steel rod by which both the upper and lower sprockets start rotating.

By the rotation of these sprockets, the chain which is set in a motion on these sprockets in vertical direction also starts rotating. A duster which is set in a motion on this chain starts reciprocating up and down, thus clean the board.

A switch is provided for front and back motion of the duster.

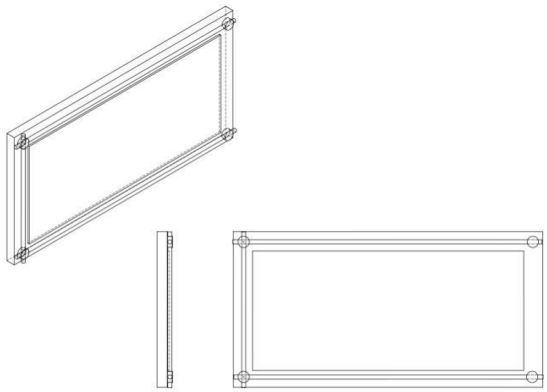

Fig. 2. Layout of black board

7. Applications

- Decrease tiredness of teacher
- Easy to operate
- Cost will be less
- Problem of dust can be reducing.
- Easy to construct the smart duster.

8. Advantages

- Easy and quick activity with most extreme cleaning territory
- High level of precision.
- Problem of residue can be decrease.
- Its development is straightforward and requires less support.
- Low cost.
- Portable in size and simple movable.
- No outer instrument are utilized here to control it.
- Less manual work.

9. Disadvantages

- Electricity is required for erasing operation.
- An automated system may have a limited level of intellect.

10. Conclusion

- Automatic blackboard erasing mechanisms have been studied and carry out for erasing the blackboard automatically. It provides a better solution for the health hazards.
- Compared with manually wipe, smart wipe has an impact and runs clean with suitable response pace.
- The smart eraser has an easy structure, clean to operate, clean to achieve uncooked materials, production gadget easy process. Its Control functions, and much less vulnerable to interference, excessive reliability, ease of use, could make merchandise with excessive overall performance and occasional cost.
- The product is appropriate for large, medium and small institutions, the advertising of positive significance.

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