



Elevator Guide Rail Cleaning Robot

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ABSTRACT

This paper is dedicated to the construction of an elevator guide rail cleaning robot. During the elevator guide rail installation period, paint, dust, rust, and other impurities are deposited on the elevator guide rails. Because of that, it needs to be well cleaned without any deposited impurities on guide rails to make the elevator more efficient. Risky, unsafe, harmful, time-consuming, and basic manual methods are used by the workers to carry out the elevator guide rail cleaning process. Therefore, a fully automatic and efficient elevator guide rail cleaning robot is introduced. This robot has consisted of three systems. They are hardware system, control system, and power supply system. In addition, the hardware system has consisted of seven subsystems. The whole operation of this robot is controlled by the control system. And it is operated by the Arduino microcontroller. 12v DC power supply has been used to supply power to this robot. Moreover, when the robot is fitted and activated on the guide rail, it automatically stops at the top or bottom of the guide rail after the guide rail has been fully cleaned. Therefore, a person is not required to operate the robot. This robot can be developed at a low cost, and it saves time rather than cleaning the guide rails manually. Another important benefit of this robot is that the workers can stay healthy by protecting themselves from dust and other impurities when they are cleaning elevator guide rails automatically.

Keywords: *Elevator, Microcontroller, Arduino*