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DEVELOPMENT OF SWITCHING CIRCUIT POLARITIES OF ELECTROMAGNETS DC

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This work is directed to the development of the management system of electromagnetic lifting installation. To develop such control system is necessary to create automatic system of switching the poles. The experiment model of levitation system is developed for carrying out prior experiments. The Arduino UNO platform on the basis of the Atmega328 microcontroller is chosen. In paper the description of L293D driver is presented and the principle of driver operation which is a part of the circuit is considered.

Keywords: electromagnetic lifting installation, microcontroller, KT805 series transistor, L293D circuit driver.

Introduction

With the increase in the depth of mining and the productivity of lifting equipment, in conditions of unstable loads, the requirements for qualitative parameters of the elements of the lifting complex, their reliability and durability increase. The consolidation of mining enterprises, the transition to the development of seams at great depths, causes an increase in the load on mine hoisting installations, and the intensity of their work increases.

The stability of the operation of mines and mines is largely determined by the reliable operation of underground transport and lifting installations of vertical trunks, through which the delivery of minerals and rocks to the surface.

Previously, for the transportation of rock mass, magnetic levitation was not used anywhere in the world, and the creation of this facility entails the introduction of a new innovative technology for transporting both mining mass in the mining industry and in other industries for lifting and transporting goods (for example, in construction).

Now there are not enough generalized theoretical and experimental studies which could be used while calculation and projection of the electromagnetic lifting installation based on magnetic levitation. The substance of the offered technology is concluded in application for rise and motion of skip of electromagnetic field force (a magnetic levitation) for realizing ropeless rise.

1. Statement of the problem

Ensuring skip motion in the horizontal as well as vertical direction requires the ordered switching of poles of electromagnets in the directing devices. Ensuring trouble-free operation of electromagnetic lifting installation requires switching polarities of hundreds of electromagnets. It causes the necessity of automatic control system development.

During the motion skip is under the influence of forces various in their origin and character. The specified forces can be subdivided into electrodynamic and mechanical. The results of the experimental and theoretical studies for a range motion speeds inherent in installations with a magnetic suspender showed that the force of aerodynamic resistance of the air environment is the dominating making resultant force of the skip motion resistance. Forces operating on the skip from the air environment at the most common problem setting are defined by the main vector of

