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ALGORITHM OF MODAL CONTROL OVER THE TRAJECTORY OF THE UNMANNED MINING DUMP TRUCK

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ABSTRACT

The paper presents the results of the development of dynamic modal control over the trajectory of the unmanned mining dump truck. The authors analyze the algorithm of current trajectory control and develop an algorithm for modal control of unmanned vehicles. The parameters of the modal regulator are assessed. The resulting parameters allow setting the required non-stationary poles of a closed-loop automatic control system with full state feedback. The study concludes that the automated system of modal control over the deviation of current trajectories of unmanned vehicles provides expeditious stabilization of the movement of unmanned vehicles along the quarry routes, which contributes to the efficiency and safety of the production process in open-cast mining.

Keywords: dynamic modal control, Kalman-Luenberger criterion, S-frame.