

ABSTRACT

The master's dissertation consists of the introduction and 6 sections, the conclusion and the list of used literature. The full volume is 89 pages, including 41 illustrations, 26 tables and 25 literary sources.

The urgency of this topic is that automation of production simplifies the control process, and also can replace some processes of production. Known foreign work-manipulators have a significant drawback - a high price, and in our country work manipulators of the same type or the same type are not manufactured. Because of this, the automation of domestic production and further control of manufactured products is high value, and not every manufacturer or company can afford to use a robot-manipulator. Therefore, it is proposed to create a robot-manipulator model for the training of specialists who in the future will program such robot manipulators for work. Due to the high price of industrial robot manipulators, their availability in higher education institutions is impossible, therefore, it is proposed to print a design of this similar model using a 3D printer and using as a source of propulsion power and stepper motors.

The purpose of this study is to develop a robot-manipulator for positioning sensors in products with complex geometry. Creating a management program is the second stage of the study.

Task:

1. Analytical review and patent search;
2. Development of robot-manipulator design;
3. Development of a management program;
4. Layout and experimental research.

Object of research - the process of automation.

Subject of research - methods and means of positioning sensors.

The robot-manipulator was created by means of the Arduino hardware platform, the SolidWorks graphics development environment, and the 3D printer. Using these technologies will significantly reduce the cost of control, make it more affordable and automate.

Part of the research process was published in the collection of theses of the 11th All-Ukrainian Scientific and Practical Conference of Students and Postgraduates "A View to the Future of Instrumentation."

Keywords: robot manipulator, automation, complex geometry, Arduino, Solid Works.