As a conclusion, the model is computed. So, the next step is to develop control system, which can make manipulator's links move the fixed trajectory. It can be done by adding PID-regulators to the fig. 1 circuit.

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GUI MOBILE DEVICE – IDENTIFIER OF CONTROL OBJECTS

Lai Trung Tien, Tran Van Nam, I.O. Ilyin

Tomsk Polytechnic University, Russia, Tomsk
E-mail: bkmsx.tien@gmail.com, trannambk90@gmail.com, ilyin88ok@gmail.com

Abstract – The authors consider creation of convenient and functional graphical user interface for the identifier of control objects on the basis programmable logic controllers of two types.

Introduction

When you configure automatic control systems, the identification of control objects (OC) is very important. The identification process provides a mathematical model of control objects that in the future will provide the coefficients for the accurating configuration of regulators. In this connection was established mobile device management object identifier [1, 4]. To ensure fast and convenient use of the identifier must be simple and intuitive human-machine interface. In modern society, the most widely used graphics device to work at work and at home is the touchpad. Thus parts of the cell identifier

consists are the touch panel, controller and I / O modules. The graphical interface of the touch panel must be interactive, correct and understandable by specialists.

Creating the interface

During the development of the GUI created two versions of identifiers.

In a first version, as a programmable logic controller (PLC) is used OWEN PLC 160 and graphic panel – OWEN SP270, as well as any connected modules: analog input and discrete input-output. Programming the controller, a special programming environment Codesys 2.3, and for programming the operator panel is used configuration program SP200, which is supplied with the panel. Creating a graphical user interface revealed that the process of displaying information requires a large amount of graphics memory and performance, for the dynamic display. Therefore, it was decided to choose a more efficient industrial logic controller, as well as for ease of compiling and debugging, combined with the touchpad.

The second option is a controller SPK207 having more speed graphics system and allows you to display more information about the type of control signal and connected properly. SPK207 is more convenient programming environment, combined with graphic elements, thus reducing the amount of work performed during the configuration and programming of the identifier. SPK 207 has a larger number of interfaces (Ethernet, RS-232, RS-232 \ RS-485, USB) to connect to a variety of signal sources, as well as slots for connecting storage devices (USB Flash, SD card). Combining the functions of the PLC and the operator allows, firstly, to reduce the overall cost of ICS, and secondly, to save space when placing the PLC into a box. Increased number of I / O by connecting external modules according to any of the built-in interfaces. SPK 207 management is carried out using the touch screen and the extra buttons with LED located on the front of the controller.When device is connected, dialog of selecting functions is appeared: «CHOOSE MODULE», «CHOOSE CONNECTION», change language interface «LANGUAGE»: English or Russian, as well as help page for «HELP» (fig. 1). The next step is used to select the module, which will be connected to an external signal source (sensors).

After you select the module, determine which inputs were connected to sensor or actuator (fig. 3). When you press the desired input, a dialog box appears to confirm or cancel the selection. After connecting to the corresponding input, button move to the next menu screen becomes active to complete the identification phase of the signal.
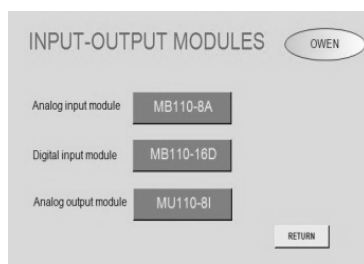
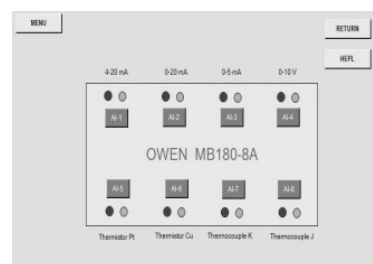| Fig. 1. The initial window of device | Fig. 2. Selection window of I \ O modules | Fig. 3. The window of analog input modules |

Conclusion

A graphic interface of the mobile device identifier control objects on the basis of industrial controllers of «OWEN» SPK207 was created. Currently further work connected with correcting display of obtained information, as well as the most accurate charts and graphs.

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