

Analysis of Ways of Disturbances Limiting in the Channel of Telecommunication Control the Robotic Systems

Andrey Dovgenko, Dmytro Titkov, Volodymyr Shvaichenko, Olena Shvaichenko

Abstract - In this paper the results of researches of the robotic systems in the aspect of electromagnetic compatibility are given. The scheme of the transmitter module is shown. The features of problem are certain as it applies to mobile platforms.

Keywords - Electromagnetic compatibility, Robotic system, Mobile platforms.

I. INTRODUCTION

Presently wide distribution is got by the robotic systems (RS) with an acoustic channel. They are based on big quantity of executive mechanisms [1]. These devices are the sources of electromagnetic interferences [2]. Application of wireless channel in the structure of RS substantially intensifies the problem of electromagnetic compatibility (EMC). The decision of it possibly depends on the concrete parameters of channel.

II. FEATURES OF RS, DETERMINING EMC

The modern robotic systems acquire all greater actuality. Due to the properties and RS the large have advantages above work of ordinary peoples. RS have the followings advantages:
Flexibility:

- Robot, in comparing to the man, works regardless of biological and psychological aspects,
- RS module and modernized easily et cetera.

Productivity and economy:

- RS work in the mode 24/365 (24 hours on days, 365 days on a year),
- RS cut production cost et cetera.

Accident prevention and defence of environment:

- Robot will rationalize the process of production,
- Robot allow to organize ergonomics workplaces et cetera.

Quality:

- RS provide stable quality of products,
- RS do not need intermediate control et cetera.
- Robots open new prospects in sense of quality of products guarantee.

All are transferred the feature of RS substantially limiting unit cost, promote its quality and diminish time on making.

RS consist of a few parts: engine systems, manipulation system, control system. For testing it is created RS, which has the system of movement which shows by itself a platform on four wheels. For providing of movement in all directions of two front wheels equipped by engines with an independent control. So as a research purpose is the EMC of RS, the manipulation system was not presented. System of control provides a reception and transmission of commands communication from control unit and provides the

management of movement the system. A telecommunication channel is built on the basis of the wireless module MP324.

The module MP324 has such technical descriptions [3]:

Transmitter:

Power voltage, V	12
Input current, mA	4
Frequency, MHz	433,92
Output power, mW	1

Receiver:

Power voltage, V	5
Input current, mA	12
Maximal output current, mA	5
Frequency, MHz	433,92
Bandwidth, MHz	+/-5
Sensitiveness, mkV	5
Distance (direct visibility), m	100

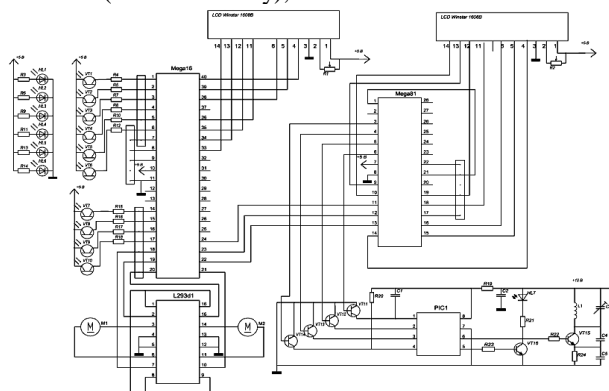


Fig. 1 Principle chart of the transmissions module
Operation of RS-engines in transient modes can decay work both acoustic and telecommunication channels. For providing EMC apply hard and softwares.

III. CONCLUSION

In this paper the instructions for obtained of structure RF-module are given. The list of advantages of RS is resulted. The ways of RS EMC providing are offered.

REFERENCES

- [1] K. Tchon, "Cybernetics of Robotic Systems," Wydawnictwa Komunikacji I Laczynosci. Warszawa, Poland, 2004, 168 p.
- [2] V. Shvaichenko at all Automatics and electrodrive of data recording technique. – Kyiv: Osvita Ukrainy, 2010. – 158 p.
- [3] <http://lib.chipdip.ru/291/DOC000291265.pdf>