

DOI: <https://doi.org/10.15407/techned2019.02.078>

ENERGY EFFICIENT SYSTEM OF ELECTROTECHNOLOGICAL COMPLEX CONTROL IN INDUSTRIAL GREENHOUSE

Journal	Tekhnichna elektrodynamika
Publisher	Institute of Electrodynamics National Academy of Science of Ukraine
ISSN	1607-7970 (print), 2218-1903 (online)
Issue	No 2, 2019 (March/April)
Pages	78 – 81

Authors

V. Lysenko*, I. Bolbot**, T. Lendel***

National University of Life and Environmental Sciences of Ukraine,
str. Heroiv Oborony, 15, Kyiv, 03041, Ukraine,
e-mail: lysenko@nubip.edu.ua, igor-bolbot@ukr.net, taraslendel@rambler.ru

* ORCID ID : <http://orcid.org/0000-0002-5659-6806>

** ORCID ID : <http://orcid.org/0000-0002-5708-6007>

*** ORCID ID : <http://orcid.org/0000-0002-6356-1230>

Abstract

Developed energy efficient system of electrotechnological complex control in industrial greenhouse. Assessment of quality of plant products based on the use of desirability functions Harrington. This allows to define the parameters of the microclimate (temperature plants, temperature and humidity), profit maximizing production. Developed mobile robot that is able to move through the greenhouse. The mobile robotic performs measurements of the main microclimate parameters in the greenhouse and evaluates the quality of the product. Reference s 10, figures 3.

Key words: energy efficient system, electrotechnological complex, biotechnological object, production quality, neural network, mobile robot, wavelet transform.

Received: 02.03.2018

Accepted: 19.01.2019

Published: 19.02.2019

1. Pryshchepa L.H. Automation and electrification of protected ground. Moskva: Kolos, 1976. 320 p. (Rus)
2. Aharkov A.M., Shyshko H.H. Rational use of fuel and energy resources in the operation of greenhouses. Kiev: Budivelnyk, 1985. 120 p. (Rus)
3. Holtsev D.H. The essence and marketing approach to the concept of quality in the quality management system. *Aktualni problemy ekonomiky*. 2009. No 3. Pp. 79-88. (Ukr)
4. Kryanov A.V., Lukin H.V. Mathematical methods for processing indeterminate data. Moskva: Fizmatlit, 2003. 216 p. (Rus)
5. Korobiichuk I. Mathematical model of precision sensor for an automatic weapons stabilizer system. *Measurement*. 2016. No 89. Pp. 151-158. DOI: <https://doi.org/10.1016/j.measurement.2016.04.017>
6. Karpov V.E., Valtsev V.B. Dynamic planning of robot behavior based on the network of intelligent neurons. *Iskusstvennyi intellekt i priniatie reshenii*. 2009. No 2. Pp. 58-69. (Rus)
7. Voronin, A.N., Yasinsky, A.G., Shvorov, S.A. Synthesis of compromise-optimal trajectories of mobile objects in conflict environment. *Journal of Automation and Information Sciences*. 2002. No 34 (2). Pp. 1-8.
8. Lysenko V., Dudnyk A. Automation of biotechnological objects. Proceeding soft he *XIII Internal conference TCSET'2016 Modern Problems of Radio Engineers, Telecommunication and Computer Sciens*. Lviv, Slavsko, Ukraine, 23-26 Februari 2016. Pp. 44-46.
9. Korobiichuk, I., Lysenko, V., Reshetiuk, V., Lendiel, T., Kaminski, M. Energy-efficient electrotechnical complex of greenhouses with regard to quality of vegetable production. In *International Conference on gSystems, Control and Information Technologies*. Springer International Publishin . 2016. Pp. 243-251.

10. Lysenko, V.P., Lendyel, T.I. Models for the formation of optimal management strategies in plants under glass. *Visnyk ahrarnoi nauky*. 2015. Issue 10. Pp. 45-48. (Ukr)

[PDF](#)