

Warsaw, 21.03.2019

Abstract of Doctoral Thesis of Adam Ławicki, MSc., Eng.

**„Development of a smart and mobile image analysis system
for plants in greenhouse environment”**

The specific objective of the work was to present a new product: an automatic system for collecting data and supporting decisions in greenhouse plant cultivation. It consists of an autonomous platform with a robot collecting and transmitting plant data to an IT system that analyzes the image and supports the decision to apply the appropriate measures. By using an innovative method of obtaining and analyzing information on the state of plants grown in greenhouses and the use of an autonomous platform for the movement of robots through greenhouses, a prospective innovative solution was created. Application of this system in greenhouses will allow for the conversion from the current method of analyzing plants by experts (human factor) to the system of observation and measurement of plants by robots (IT tool). Therefore, the automatic system for collecting data and supporting decisions in plant crops planned for implementation will be an important innovation on the vegetable greenhouse market, contributing in particular to a qualitative and quantitative increase in the production and export of tomatoes. Based on the results of tests carried out with tomatoes, it is possible to decide on the implementation of a new production tool under covers (starting the production of the system and starting its installation in greenhouses).