

# METHOD FOR GEOLOCATING SURFACE OBJECTS WITH HELP CREWLESS SHIP

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The proposed method for processing information received from a digital video camera and position sensors as part of a crewless ship navigation complex allows determining the distance, direction, and also relative speed and acceleration relative to the object of observation. The proposed method can find wide application in marine robotics for determining the distance to objects on the surface and underwater. To process the image matrix, mathematical operations are used to obtain information about the movement relative to the observation object. Such systems can be combined with machine vision to increase the autonomy of marine robotics, as well as to improve the safety of control of land and water transport. The information processing system is modular and this system can be upgraded with measuring systems and sensors. The major advantages of this method are inexpensive initial set of sensors, relative simplicity of mathematical calculations that do not require powerful computing systems. The passive measurement method provides high energy efficiency and secrecy with respect to the observed object. These features can be critical to battery life and crewless ship stealth capabilities.

**Keywords:** machine vision, trigonometric transformations, affine transformations, inertial navigation

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