

PERSPECTIVE OF OPTICAL COMMUNICATION AND ORIENTATION SYSTEMS APPLICATION IN UNDERWATER ROBOTICS

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Last years the volume of information, received from different underwater sensor systems, increased considerably including video and images data from ocean. It demands translation of large amount accumulated data to the center of receiving and processing for sensor information. Designing of cable bottom networks is extremely expensive. Acoustical communication systems were found wide expansion for execution of underwater data transmission. However the underwater acoustical communication has some shortcomings including low speed of information transmission, additional noises in data and complication in secret delivering of messages. In this connection the investigation are conducted more wide connected with designing of wireless optical communication that allows secrecy and much more high velocity of data transmission. Optical communication systems are more compact and cheap than acoustical communication systems but their main shortcoming is short distance of operation that is restricted by distance of optical view in the underwater. Power light diodes /LED/ systems, used in underwater optical communication, along with information transmission and mutual distance detection can be used for orientation and delivering of autonomous underwater vehicle /AUV/ to area of optical vision near the bottom station that allows to provide more reliable communication. The review of current state in underwater optical systems is fulfilled in the paper and perspective of their usage for realization of fast underwater communication and provision for orientation and docking of AUV near bottom objects in underwater space are considered.

Key words: optical underwater communication systems, autonomous sensor networks, autonomous underwater vehicles, optical systems for orientation and docking

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