GUI (GRAPHICAL USER INTERFACE) DESIGN FOR ROV MONITOR AND CONTROL (REMOTELY OPERATED VEHICLE) FOR UNDERWATER OPERATIONS

Yanuar Kristanto

Electrical Engineering Study Program, Faculty of Science & Technology
University of Technology Yogyakarta
Jl. Ringroad Utara Jombor Sleman Yogyakarta
E-mail : Yanuar.kristanto47@gmail.com

ABSTRACT

Robotics technology has become an important part of human life. As well as robots that have been created by scientists who are designed according to needs. There are two types of robots, namely mobile robots and arm robots. Mobile robots can be grouped into three namely land robots (ground robots), underwater robots (underwater robots), and flying robots (aerial robots). Underwater vehicles can be divided into two, namely manned (manned) and unmanned (unmanned). ROVs (Remotely Operated Vehicles) are unmanned underwater robots that still require human input for control. One potential area of optimization within the ROV subsystem is the User Interface (UI), which can be a critical success factor in a command environment. This study discusses the Design of a GUI (Graphical User Interface) for Monitoring and Controlling an ROV (Remotely Operated Vehicle) for Underwater Observation. GUI control or can be called GCS (Ground Control Station) is connected to the ROV and gripper via UART RX and TX serial communication on 2 microcontrollers in the form of Arduino Nano on GCS and Arduino Uno microcontroller on ROV. The results of this study are in the form of data sent by the ROV which is then displayed on each widget such as the Gyroscope which consists of pitch with an error of 1.165%, and roll with an error of 1.055%. Compass data with 0% error. Then there is battery data with an error of 8.446%, and additional data in the form of a description of the condition of the driving motor. In addition, it is also equipped with a warning system in the form of a gyro tilt warning and a leak warning.

Keywords: GCS (Ground Control Station), GUI (Graphical User Interface), Visual Studio