Prototyping an Autonomous Underwater Vehicle (ITS AUV-01) Based on Application Using IMU, Compass and GPS Module

Student : Agus Setiawan  
NRP : 2107100171  
Department : Mechanical Engineering  
Academic Advisor : Hendro Nurhadi, Dipl. -Ing., Ph.D.

Abstract  
The ocean takes two-third portion of earth surfaces and has an important role in the development of all living things. Huge amount of ocean natural resources is very important for human future. On the other hands, underwater ocean resources survey has a lot of problem in both equipment and human as the subject. Therefore, the needs of equipment for ocean underwater survey rapidly increase.  
AUV (Autonomous Underwater Vehicle) was an unmanned robot and it has capability to move autopilot or autonomous. There are seven important aspects of AUV design which is: stucture analysis, navigation system, propulsin sistem, payload sistem, remote sensing, power management and control system. It is essential that the AUV has a good stability and waterproof.  
This research conclude that for operating depth of 50 metres, the ideal weight of ITS AUV-01 were 19.8 kg with Xi = 0.001 mm and Yi = 0.00103 mm. Instumentation of ITS AUV-01 using ATMEGA8535 microcontroller with velocity angle comparation utilize compass censor.

Keywords: autonomous underwater vehicle, Compass, ATMEGA8535, Autopilot.
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