Prototype Website Rov*(Remotely Operated* Vehicles) Using *The Internet Of Things*

H Aknov[1], Y Aprilinda[1]
[1] Informatics, Computer Science Faculty, Bandar Lampung University, Indonesia

1. Introduction

Increasingly knowledge is growing rapidly. One of these is evolving knowledge about robotic technology, Robotics in today has become an important part of human life. Robots are Eletro-mechanical equipment or bio-mechanical, or a combination of equipment that generates the autonomy movement and the movement based on movement ordered.Robot in some cases can replace the role of man, as seen on the robots are applied in various fields such as industry, health*(health),*defense*(defense),*agriculture*(agriculture),*research*(research),*ploy*(game),*vehicles*(smart vehicle)* and others.*Smart vehicle* that is being developed is *a Remotely Operated Vehicle* (ROV), ROV*(RemotelyOperated*Vehicles)is a tool that serves a kind of robot to search underwater sonar and camera equipped. ROV has the ability to observe objects in the ocean and is controlled by remote control from directly above the water surface.ROV can provide convenience to the people to not have to go and dive marine observing various resources that exist in the oceans. by using this tool a person need only look at the data recorded by the ROV were put to sea in a monitor, and send all the data into a website via an internet connection which can later be accessed via computer or mobile device. To be able to upload data- research data from the vehicle via the internet have a problem because they have not had a personal website, on the background is the background of the manufacturing system for ROV website.

2. Theoretical

2.1Literature

To support this study used several relevant theoretical basis and related to the subject as follows:

a. Research conducted by Khumaidi, S. Kauthar, MZ Sholichin, and N. Rinanto about *"PrototypeLow-Cost Shallow-ROV* as a Tool Help Mapping bathymetry in shallow water ", basic supervision of water and shallow water depth (bathymetry) both at sea and the river is important to anticipate erosion, silting of rivers and beaches. In general, measurements were performed using sonar and echosounder LIDAR or laser-based optics. However, these technologies require no small cost and will have difficulty reaching the measurement area is large enough. Overcome it made a *Remote Operated Vehicle* (ROV) which will function to read the depth of the water. ROV is equipped with navigation devices such as GPS*(GlobalPositioning*System)integrated with the device board using MultiWifi intruments SE. While controller and communication device using the Arduino Uno board v3. Measurement of depth usingmodule *DT-SENSEBarometricPressure and Temperature Sensor. SHALLOW-ROV* is also equipped with a VGA resolution CMOS camera type used in vehicle control. Recording the results of the depth measurement is done by using a computer that equiped program and connect to databases and the Internet so that it can directly be observed online.
b. Research conducted by M. Abdul Hamid Koli, Eagle Derdian Marindani, and Aryanto Hartoyo "Underwater Robot Design Mini ROV*(RemotelyOperated*Vehicles)Based Microcontroller ATmega16", underwater technology received less attention from the public, there are many underwater activities done in a conventional manner and has a high risk. Therefore, a robot capable of moving under water is needed to help the human task. Underwater robots that are designed is a type of mini ROV-based microcontroller Atmega 16. This robot using 3 motors to maneuver and equipped with cameras and lighting systems to monitor the underwater conditions. ATmega16 microcontroller as the main controller connected to *joystick control* via a cable so that the robot can be controlled from the surface. The purpose of this research is the realization of an underwater

robot that can replace conventional manner in underwater activities. It is most important in the design of the mini ROV control system and the system is watertight. Watertightness of the test results, there are no leaks in the body, monitoring systems and lighting systems. While testing the robot motion when in the water, they can maneuver the robot in accordance with instructions. When forward with a distance of 2.25 meters takes 11.51 seconds and retreated with the same distance with a time of 10.65 seconds. To dive to a depth of 60cm takes 5.5 seconds while riding or raised with the same depth with a faster time at 2.8 seconds because not resist the water pressure. At the time turned to the left at an angle 0-360 time it takes 8.53 seconds, while to the right at an angle 0-360 recorded a longer time is 9.72 seconds. For the monitoring system and the lighting system can still work under water even though the results are displayed monitoring system less than the maximum. The test results concluded that the robot can be maneuvered in accordance with instructions and can assist monitoring activities under the water.

c. Research conducted by Michael Peshkin and Malcolm A. Maclver about*"Findingand Identifiying Simple Object*Underwater",Electrosense actively used by fish for sensing objects by inducing disturbance in the self-generated electric field, active electrosense very useful in environments where darkness, chaos and turbidity makes vision ineffective. Active Electrosense motivated by the need in the underwater sensor that functions well at short distances, and which the vision-based approach can be a problem, as well as to assist in understanding the biological electrosense computing principles. Before working at *electrosense* active robot has focused on tracking and location round object.

d. Research conducted by Samuel Yim and Christopher M. Clark on *"ROV-basedTracking of a Shallow Water Nocturnal*Squid"This paper describes the use of vehicle (ROV) equipped with monocular vision system to locate and track scolopes Euprymna squid, so squid motion behavior can be characterized through the use of *offline* image processing and *estimationstate,* ROV placed for few nights in some locations near the coast of Oahu, which resulted in 10 hours of recording squid.Tracking using image processing techniques and state of the particle filter estimator, squid can be detected and tracked. The position, velocity, and acceleration relative to ROV stationary squid can be determined. The experimental results of tracking simulation squid in a position known at the pool and tracking of squid live in the sea validate the performance of the tracking system. The results show the 3-D trajectory of squid in a video of the test meal. To the best of the authors' knowledge, this is the first observation and tracking of this species of squid in its natural environment.

3. Results Analysis and Discussion

3.1 Form Dashboard Web ROV

Viewspage *Dashboard* of the website:

Figure 1 (Dashboard Website ROV)

Figure 2 (Dashboard ROV About Form)

Pictures *(Dashboard* website ROV) The main page of the website, to be able to access the site must *login*/*register* first. Menu *About* contains the basic information web ROV

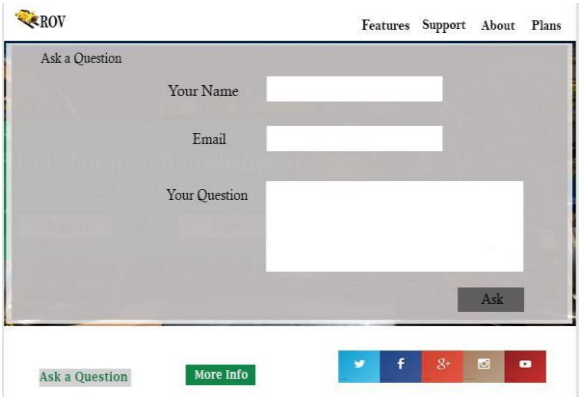

Figure 3 (Dashboard menu ask Question)

on the main page there is also a menu *ask the question* to ask the admin about the ROV that will be answered via email.

3.2 Form Page Register and Login

Here Login and register page views:

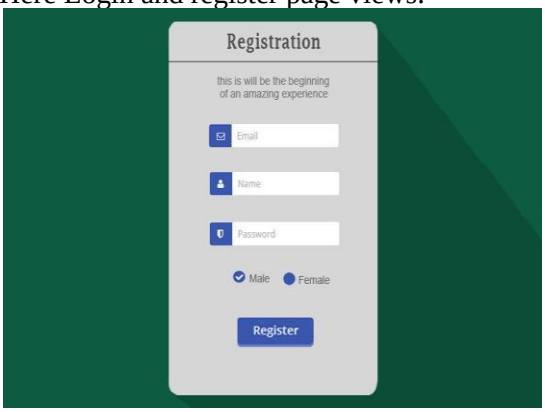

Figure 4 (Pageviews Register)

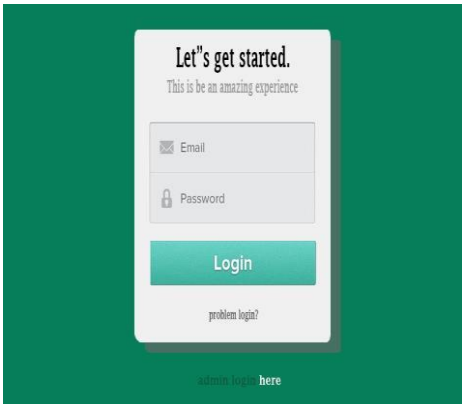

Figure 5 (Form Menu Login)

Register for the registration form, so that the user gets and has access to connect and use the device to fill in the email, username and password. Menu Log on the website, before the user must register beforehand.

3.3 Form User Account

View user profile form

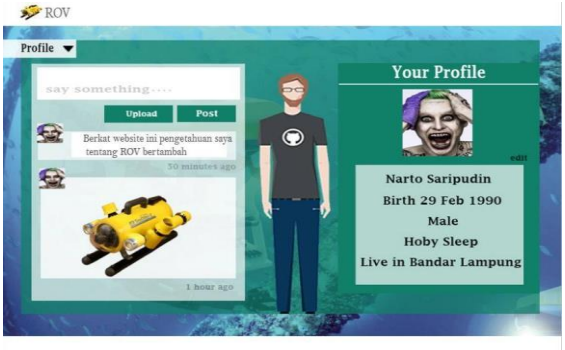

Figure 6 (Form User Profile)

Form where users send postings on a variety of information about the ROV.

3.4 Website Admin Login Form

Login Form Display on admin.

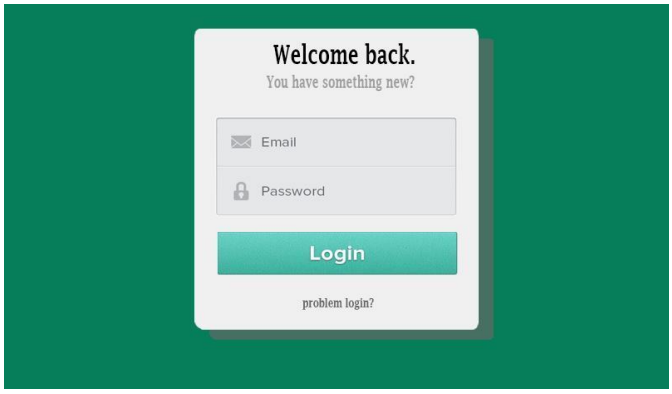

Figure 7 (Form Login Admin)

Admin who want to access the website need to login via the login form admin.

3.5 Admin profile view

Profile views form admin

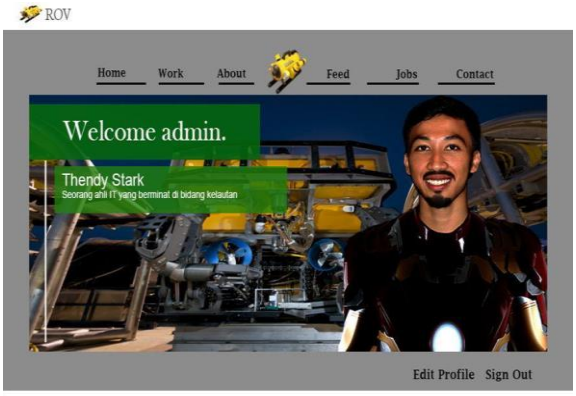

Figure 8. (see Profile Admin)

Admin website to see a little different to the normal user, here too where admins send information about the ROV.

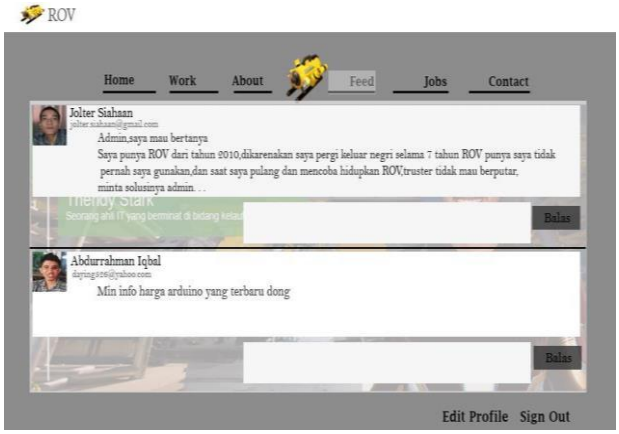

Figure 9. (Menu Feeds at Home Website Admin)

Form where all the question that has been sent and that will be answered and sent via email by admin

4. Conclusion

4.1 Conclusion

ROV existing information systems are now not good enough because not directly accessible to the Internet.

4.2 Recommendations

In ROV website should be augmented images or language that attract the public to know.This website system maintenance is required in continuous and periodic control so that the system can be properly maintained.

References

[1] Khumaidi, S. Kauthar, MZ Sholichin, and N. Rinanto. *Shallow Low-Cost Prototype-ROV* as Tools in Mapping Bathymetry in Shallow Water.

[2] M. Abdul Hamid Koli, Eagle DerSdian Marindani, and Aryanto Hartoyo. Underwater Robot Design Mini ROV *(RemotelyOperated*Vehicles)Based Microcontroller ATmega16.

[3] Michael Peshkin and Malcolm A. Maclver. *Finding and Identifiying Simple Object*Underwater.

[4] Samuel Yim and Christopher M. Clark. *ROV-based Tracking of a Shallow Water Nocturnal*Squid.