International Journal on Mechanical and Production Engineering
Volume 4: Issue1 : February 2018 , pp 1 – 3 www.aetsjournal.com *ISSN (Online) : 2395 – 3500*

OIL SPILLING ROBOT

Ashokkumar.V, Sabarinath.K.S , Vijayabalan.P.S , karthikeyan.G , Arunbabu.R , D.R.P.Rajarathinam

***Abstract*—** The researchers and oil companies are trying to take some precaution for the problem of oil spill in sea, river or on ground etc. A lot of work concerned by removing the oil from water, there are many advanced tools used for this task. Concept of this project is to clean oil spills in seashore and marine. The robot is operated and controlled by laptop and oil spill is cleanup monitoring using wireless camera. For about Five km can enable the periphery. Rising oil dumped in the sea towards the remote mode, the tool does apparent. We further use isolating device fitted to the tube, through which the oil can be carried. Through this mechanism 90 percent of the oil can be separated.

***Keywords* --** Arduino, Oil spill, sea shore, recovery, water, WIFI Module.

I. INTRODUCTION

Oil or "black gold" is still the largest source of power used by the industry sector. The demand for oil is increasing day-by-day and is substantiated by expanding submarine oil pipelines, distribution of oil and its derivatives by using tankers to carry it to many destinations. This leads to increased chances of oil leakage in the sea either by leakage from submarine oil pipelines or accidents with the tankers. In the past, such m is-happenings lead to major disasters of oil leakage in the high seas. Oil spills threaten the wildlife in the sea and hence, there is necessity for research on cleaning up oil spill quickly and efficiently has become very important issue by researchers and companies concerned.

Recovering oil from water may cost billions of dollars and take too much time. It can last for weeks and months. Many researchers and designers are concerned with how to recover the oil from water starting with the process of detecting and monitoring oil spills. The majority of oil spills (number of events) occur in coastal waters or in ports.

Therefore, contamination of the shoreline is likely at most spills, and thus the issues of oil recovery and shoreline cleanup must be addressed. Nearly all shoreline cleanup methods have some kind of environmental impact, so selection of a cleanup method inherently forces us to make some kind of tradeoff of the effects of the oil versus the effects of the cleanup. In this chapter, we describe some of the commonly used techniques for oil spill response and shoreline cleanup. The only really new techniques developed in the last few years involve chemical and biological treatment methods.

II. NECESSITY OF THE PROJECT

The leakage of oil in the sea is increasing day-by-day. It can last for over months and years. It threatens the organisms in the sea. So, it is necessary to clean up the oil spills quickly. So that it will not affect the marine organisms.

III. LITERATURE SURVEY

1) INTRODUCTION:

The literature review concentrates on different wireless technologies for an oil spill cleanup in the marine. There are average numbers of papers and they have been published in IEEE, IJETTCS, International seminar and many other journals.

2) LITERATURE REVIEW:

Emaad Mohamed H. Zahugi (2012) has proposed this paper describes an oil spill clean up the methods and technique concerned with removing the oil spill from water only but which is not an easy task as the spill usually gets stretched and spreads wider by passage of time. The only technology used to collect the oil spill is by using booms that are large floating barriers which round up the oil spill and then lift the oil off the water between two vessels.

This process takes much time and is expensive as vessels with large containers have to leave the place many times to dispose the recovered oil. In case the water is turbulent, the spill may get spread wider making

V.Ashokkumar, Mechatronics Engineering in Paavai Engineering College (Email : yuvihitman@gmail.com)
K.S.Sabarinath, Mechatronics Engineering in Paavai Engineering College (Email : sabariguy@gmail.com)
P.S.Vijayabalan, Mechatronics Engineering in Paavai Engineering College (Email : vijayhearty@gmail.com)
G.Karthikeyan, Mechatronics Entgineering in Paavai Engineering College (Email : karthikeyanmc@gmail.com)
R.Arunbabu, Assistant Professor, Mechatronics Engineering in Paavai Engineering College
D.R.P.Rajarathinam, Associate Professor, Mechatronics Engineering in Paavai Engineering College

it difficult to finish the process of cleaning up. Instead of using many large barges in the working area a swarm of sea robots equipped with a skimmers and booms can be used to collect the oil spill in one position and restrict its spread. Only vessels with containers can be there to suck the oil and store it. Also a swarm of sea robots can be dispatched to prevent an oil spill from moving towards seashore, coastline, harbor or any specific area and save the wild life more efficiently.

Researchers working with underwater robots aim to enable robots to perform many applications such as bio-mimetic swimming robots, military applications, education and research; also Unmanned Marine Vehicle is an important research area. The proposed robot with modification can be used also in the search and rescue tasks in sea like when there is airplane crash in the sea.

IV. COMPONENT DESCRIPTION

1) PIN DIAGRAM OF ATMEGA328P6:

ATMega328p is the ATMEL Microcontroller on which Arduino UNO is based. This product let you to realize your small project without using a full size Arduino board. To make this microcontroller working with the Arduino IDE you need a 16 MHz crystal, a 5 V power supply and a serial connection.

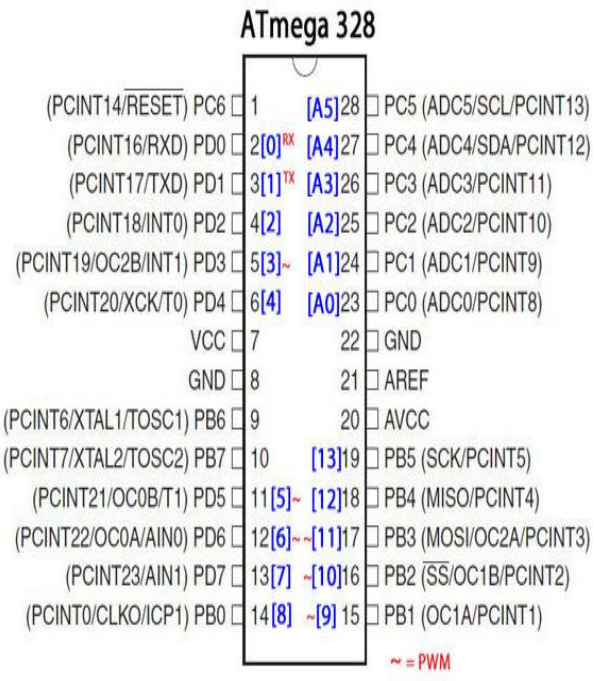

Fig 4.1 Pin Diagram

2) PUMP:

A **pump** is a device that moves fluids (liquids or gases), or sometimes slurries, by mechanical action. Pumps can be classified into three major groups according to the method they use to move the fluid by direct flip, displacement and gravity pumps.

Fig 4.2 Pump

3) WIFI MODULE:

Wi-Fi microcontrollers enable Wi-Fi connectivity for devices so that they can send & receive data and accept commands. As such, Wi-Fi microcontrollers can be used for bringing otherwise ordinary devices into the realm of the Internet of things.

With reduced power consumption and small form factor, the modules are ideal for both fixed and mobile wireless applications where a complete from-scratch Wi-Fi connectivity design is not an option due to technical, time-to-market (avoids lengthy certification processes) or total-cost-of-ownership (it helps drastically cut development costs) considerations.

Fig 4.3 WIFI Module

V. WORKING

The oil lekage is identified then the robot get signal through the indication by the sensors. The oil lekage in sea shoare may cause harmfull effect for the animals in the sea water. So the robot is used to suck the oil floating above the water. The oil has more density than water. Oil float on the water is suck by the rotating cotton roller and then collected to the container.

The collecter oil content in the container has 92% of oil and 8% of water. The collected oil is again recycled or dump to the wastage. Oil can be easily collected by this process and collect large ammount of oil than any other method. Less amount of water is collected compared to other methods.

The wifi module is used to control and operate the robot towards the oil leakage in the sea water. The camera can capture the image of the oil lekage and give live show about the process going in the sucking of oil in the sea water.

VI. FUTURE SCOPE

The project is now controlled by the robot for few km only. The future project can be extended to larger area. Up to 98% of the oil can be cleaned by the robotic system using various technologies. The robot is used to clean oil spill in marines and seashores which is ecofriendly. It can't cause any harm and dangerous stage for the organisms in the sea water.

VII. RESULT AND DISCUSSION

In this project the oil spilling in the sea shoare is collecter through the robotics methodology. The oil in the sea water is float on the above surface due to high density of the oil. By using this method we can collect the oil upto 92% per container. Oil collected in the container is used for recycle.

VIII. CONCLUSION

Robot can be used in collecting an oil spill in the sea and seashores more successfully and efficiently than most of the other methods and save the environment from a real threat. The simulation result for extraction of oil can be observed in proteus environment along with literature survey. This way it will be possible to reduce human intervention and enhance accuracy even in the most hostile environmental conditions. Avoid human labor and hand equipments. Clean up 90% of seashore. Cost is lower than the existing system. Human beings are not affected by this work. This project is used in oil spill cleanup in seashore and marine. If marine areas met any oil spill accident, this method is used to recover oil quickly from the marine.

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