

Then the user will employ manual control of motor by providing the commands in hyperterminal software and prevents the robot from border crossing .

3.Simulation

The simulation of the features of robotic boat can be done by the proteus software. The tools provided by the ISIS schematic capture enables the developer to design the circuit schematic. The program is compiled by MPLAB IDE and hex file is generated for programming the microcontroller. Hex file is the format which the microcontroller can be programmed. MPASM assembler within the MPLAB IDE facilitates in generating the hex file. Microsoft visual studio is used for receiving the data from the hardware (i.e. Transmitter side) and storing data

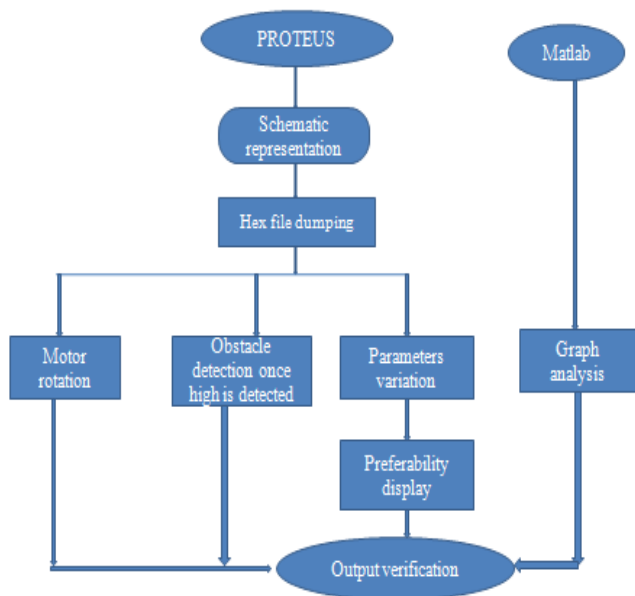


Figure 5: Flowchart of simulation in proteus

Matlab reads the stored data and plots the graph automatically. This enables the researchers to analyze the parameter values. The increase or decrease in parameter can also be found from the graph. The fig 5 shows the flowchart for simulation of this project. Proteus, matlab, MPLABIDE are the softwares involved in simulation. Before implementing in hardware it is intelligence of simulating in software. This ensures correctness of the implementation.

4.Results and Discussions

The results of simulation can be seen in fig 6 and fig 7 below. The hardware implementation provides the user a robot with full featured facility that overcomes the drawbacks existing in the earlier developments of robots. The MPASM assembler within the MPLABIDE enables to create the hex file.HEX file generation is essential because it is the format that is acceptable by microcontroller for programming. By using PICKIT2 the programming of microcontroller can be done. The microcontroller can be erasable and reprogrammed .

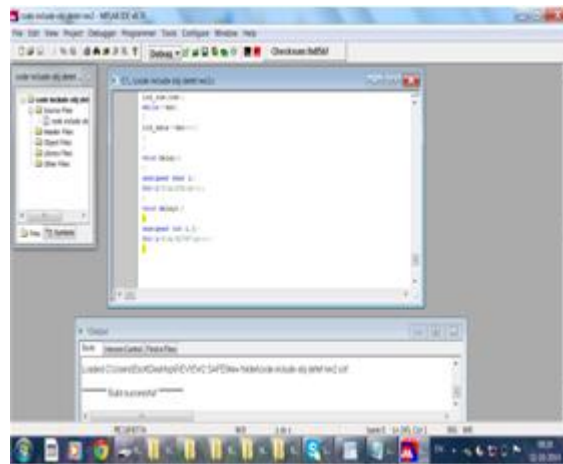


Figure 6: Program compiled in MPLAB IDE

The circuit designed in Proteus is as shown in fig 9 below.

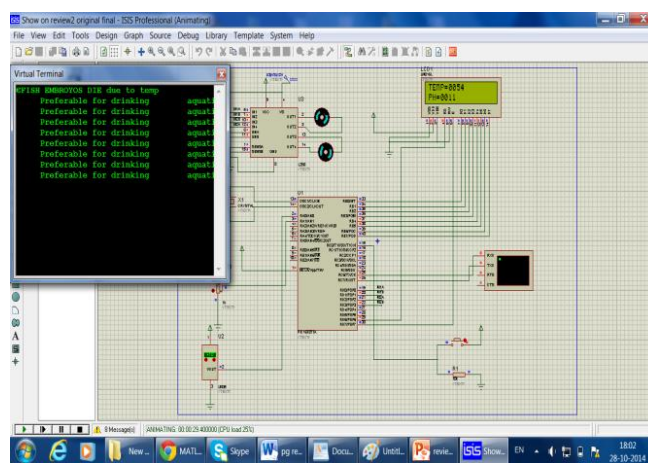


Figure 7: Circuit designed in proteus

5. Conclusion

The robotic boat enables the user for effective monitoring of water quality. It can be implemented in all kinds of water resource. Any person can handle this robots and can know about their preferability of water resource without any assistance. The developing technology facilitates taking necessary actions if water pollution goes beyond the acceptable limit. Location identification, manual control from remote location, border identification, etc several such enhanced features of this proposed robot is highly attractable

6.Future Work

In future,This project can be extended by increasing the number of actions for reducing the pollutant level. In addition to environmental monitoring around water resources, monitoring of underwater species by implementing water proof cameras can be done.

References

[1] S. Ruberg, R. Muzzi, S. Brandt, J. Lane, T. Miller, J. Gray,S.Constant, and E. Downing, "A Wireless Internet-

- Based Observatory: The Real-Time Coastal Observation Network (ReCON),” IEEE, 2007.
- [2] Hydroid, LLC, “REMUS: Autonomous Technology for Your World,” <http://www.hydroidinc.com>, 2014.
- [3] C. Eriksen, T. Osse, R. Light, T. Wen, T. Lehman, P. Sabin, J. Ballard, and A. Chiodi, “Seaglider: A Long-Range Autonomous Underwater Vehicle for Oceanographic Research,” IEEE J. Oceanic Eng., vol. 26, no. 4, pp. 424-436, Oct. 2001.
- [4] D. Rudnick, R. Davis, C. Eriksen, D. Fratantoni, and M. Perry, “Underwater Gliders for Ocean Research,” Marine Technology Soc. J., vol. 38, no. 2, pp. 73-84, 2004.
- [5] X. Tan, “Autonomous Robotic Fish as Mobile Sensor Platforms: Challenges and Potential Solutions,” Marine Technology Soc. J., vol. 45, no. 4, pp. 31-40, 2011.
- [6] S. Murray, “Turbulent Diffusion of Oil in the Ocean,” Limnology and Oceanography, vol. 17, no. 5, pp. 651-660, 1972.
- [7] Y. Wang, R. Tan, G. Xing, J. Wang, and X. Tan, “Accuracy-Aware Aquatic Diffusion Process Profiling Using Robotic Sensor Networks,” technical report, CSE Dept., Michigan State Univ., 2011.
- [8] K.Gowthami, E.Nagamani “Industrial devices controlled with USB” International Journal of Science, Engineering and Technology Research (IJSETR) Volume 2, Issue 1, January 2013.
- [9] Marco Grossi, Roberto Lazzarini, Massimo Lanzoni, Anna Pompei, Diego Matteuzzi, and Bruno Riccò, “A Portable Sensor With Disposable Electrodes for Water Bacterial Quality Assessment”, IEEE sensors journal.,vol 13.No5,May 2013

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