

Life Jacket

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Abstract

A life jacket is basically a floatation device worn by a person while doing any water activities such that it assists the wearer to keep float in the water [1] [2]. The battery supplies power to the life jacket in order to provide functioning of the life jacket. Now, the person wearing the life jacket pushes the switch button in order to starting the function of the jacket whenever he/she performs the water arts. Whenever the person goes beyond a predefined water level that is detected by the water level sensor with transmitting the danger signals to the microcontroller. The microcontroller receives these signals and transmits them in the form of alerts to a nearest rescue team that further saves the person from drowning.

Keywords: life jacket, water, microcontroller, water sensor

Introduction

In today's world, people voyage to various places for performing different water arts like boating, swimming, rafting etc. Depth of the water in lakes and rivers is extremely deep due to that there are very high chances that a person may drawn while performing these water arts as the person might be incapable of swimming. To avoid these kinds of accidents, a life jacket is invented such that the person floats above the water surface while wearing the jacket. The life jacket also eliminates the movement of hands and legs required for floating above the water surface [3].

Working

The life jacket rooted with various parts that are a switch, a water sensor, a microcontroller and a battery. The battery supplies power to the life jacket in order to provide functioning of the life jacket. The life jacket embedded with a water level sensor for detecting water presence with the jacket (i.e. a danger condition). The sensor sends these signals to a microcontroller that preprogrammed with a text MAYDAY, denotes emergency conditions, that converts these texts to audio distress signals by using an Arduino library with TTS command. Further, the microcontroller converts these audio distress signals to electric signals and transmits them to nearest rescue station at a marine time rescue frequency i.e.156.8 MHz. On receiving the high distress signals, the rescue team takes immediate action and saves the life of a drowning person. .

Sometimes the person does not feel any danger condition but the jacket comes in contact with the water through that the rescues teams receives emergency conditions. To avoid these conditions, the switch plays a vital role. The person again

presses the switch button that cuts the power supplies to the system means it stops sending signals to the rescue team. This saves time and money of the rescue team [4], [5].

Result and Conclusion

The life jacket is a life saving device that automatically detects any hazard and automatically sends alerts to the nearest rescue team in order to save the drowning person in a flash. The life jacket saves the time and money of the rescue team by sending alert signals in minimum possible time.

References

- [1] G. T. M. Ten Dam and M. L. L. Volman, "A Life Jacket or an Art of Living: Inequality in Social Competence Education," *Curric. Inq.*, vol. 33, no. 2, pp. 117–137, Jan. 2003.
- [2] T. W. Mangione, W. Chow, and J. Nguyen, "Trends in life jacket wear among recreational boaters: A dozen years (1999-2010) of US observational data," *J. Public Health Policy*, vol. 33, no. 1, pp. 59–74, Feb. 2012.
- [3] C. D. Treser, M. N. Trusty, and P. P. Yang, "Personal floatation device usage: Do educational efforts have an impact?," *Journal of Public Health Policy*, vol. 18, no. 3, pp. 346–356, 1997.
- [4] E. Hernandez, "(No Title)."
- [5] C. R. Denham, "The new patient safety officer: A lifeline for patients, a life jacket for CEOs," *Journal of Patient Safety*, vol. 3, no. 1, pp. 43–54, Mar-2007.