

## Ideation Phase

### Literature Survey

Date	19 September 2022
Team ID	PNT2022TMID06197
Project Name	Virtual Eye - Life Guard for Swimming Pools to Detect Active Drowning
Maximum Marks	-

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#### *1. Automated Vision-based Surveillance System to Detect Drowning Incidents in Swimming Pools*

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At present, swimming pools are built in hotels, sport clubs, schools and private residences. Although there have been various regulations put into place to reduce drowning accidents in some countries, communities still experience Many drowning incidents. Accordingly, a real-time system that will track swimmers in a pool using machine learning techniques and prevents drowning accidents is proposed. The system consists of a Raspberry Pi with the Raspbian operating system, a Pixy camera, an Arduino Nano board, stepper Motors, an alarm system, and motor drivers. The proposed system is based on the color based algorithm to position and rescue swimmers who are drowning. The device then sends an alarm to the lifeguards. To verify the performance of the proposed system, a prototype has been developed. Implemented, and tested. The results from experiments indicate that the system has a unique capability to monitor and track swimmers, thereby enabling it to mitigate and curb the number of deaths by drowning.

Safety is paramount in all swimming pools. The current systems expected to address the problem of ensuring safety at swimming pools have significant problems due to their technical aspects, such as underwater cameras and Methodological aspects such as the need for human intervention in the rescue Mission. The use of an automated visual based monitoring system can help to reduce drownings and assure pool safety effectively. This study introduces a revolutionary technology that identifies drowning victims in a Minimum amount of time and dispatches an automated drone to save them. Using convolutional neural network (CNN) Models, it can detect a drowning person in three stages. Whenever such a situation like this is detected, the inflatable tube-mounted self driven drone will go on a rescue mission, sounding an alarm to inform the nearby lifeguards. The system also keeps an eye. out for potentially dangerous actions that could result in drowning. This system's ability to save a drowning victim in under a Minute has been demonstrated in prototype experiments performance evaluations

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#### *2. Autonomous Utility Vehicle (Auvs) Based Emergency Human Drowning Detection System Using Sonar and Thermal Detection Methods*

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In this paper, an approach which addresses the problem of drowning has been presented. According to today's world scenario, saving people from drowning should need a serious attention. The objective is to address question, how an engineer system can save the life of drowning people. This paper proposes prime method to save people, who are drowning. The devised system has the ability to automatically detect drowning people by making use of two main concepts one is Sonar Sound Navigation 2 Ranging detection and the other one is Thermal detection. Both of these detection techniques are used for detection of human body underwater. Thus, the results obtained from individual sensors of both detection techniques illustrate the effectiveness of the proposed approach in saving the life of humans from drowning underwater. Hence, the proposed approach is a viable solution to devise an innovative, portable, low cost and Customizable drowning detection system.