LITERATURE SURVEY

S.No	Title	Year	Author	Method / Approach	Advantages	Disadvantages
1.	**Automated Vision-based Surveillance System to Detect Drowning Incidents in Swimming Pools**	2020	Abdel Ilah N. Alshbatat, Shamma Alhameli, Shamsa Almazrouei, Salama Alhameli, Wadhha Almarar	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.	The model not only detects drowning but also tracks the swimmers.The system performed well during several experiments carried out in the laboratory.	There is no proof that this system will work in any pool.This system is customly built for a particular environment.And the effectiveness of the model is not tested in any new environment.
2.	**Computer Vision Enabled Drowning Detection System**	2021	U. Handalage, N. Nikapotha, C. Subasinghe, T. Prasanga, T. Thilakarthna and D. Kasthurirathna	Using convolutional neural network (CNN) models, it can detect a drowning person in three stages(drowning detection, the rescuing drone, and the hazardous activity detection). Whenever such a situation like this is detected, the inflatable tube-mounted selfdriven drone will go on a rescue mission, sounding an alarm to inform the nearby lifeguards.	Identifies drowning victims in a minimum amount of time and dispatches an automated drone to save them	Confined with a few of the hardware limitations, such as the use of a single camera and the Jetson Nano at the presence of better-quality hardware, could affect the speed and accuracy of the overall system.

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3.	**Video Based Drowning Detection System**	2021	Pavithra P, Nandini S,Nanthana A,Noor Tabreen Aslam, Praveen Kumar P	The proposed system structure here comprises of a raspberry pi (Single Board Computer) equipped with a USB camera for taking the live feed from the pool area. The system also covers the alerting phenomena using a buzzer so that necessary actions are taken intermittently without any delay	Alerting a drowning state is done without any delay here, GPIO system for alerting and short message service used in cohession with a raspberry pi computer makes this possible	A working implementation of this module is quite extensive to implement, and multiple hardware compenents working to near proximity of water can also lead to some malfunctioning
4.	**Deep Learning Used to Recognition Swimmers Drowning**	2021	Jia-Xian Jian, Chuin-Mu Wang	Using image processing technology to introduce artificial intelligence motion technology,mounting the camera on the bottom of the swimming pool, and use OpenPose to mark the image joint point features, and input the captured joint point features into the recursive neural network to determine whether the swimmer is drowning..	The final training result is about 89.4% accurate, so it can be used to assist on-site lifeguards to detect swimmers who may be drowning,	Too much air bubbles generated by the drowning swimmer in the water will also occur. There is a chance that the action cannot be captured by the computer
5.	**Identification of Drowning Victims in**	2022	Anjana Unnikrishnan, Roshni A T,	Using multiple sensor data in underwater human rescue detection system to spot drifting	The final training result is about 89.4% accurate, so it	The performance of the model depends on the nature of the water body

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	Freshwater Bodies using Drift Prediction and Image Processing based on Deep Learning		Anusha P R, Anju M Vinny, Anuraj C K	and drowning person in a natural water eco system. The water flow sensor which is attached to the portable device calculates the drift distance and tracks drowning person.	can be used to assist on-site lifeguards to detect swimmers who may be drowning,	concerned as the drift distance is different for different water eco systems.