TITLE	AUTHOR	YEAR	DESCRIPTION	ADVANTAGES	DISADVANTAGES	METHODOLOGY
The Swimmers Motion Detection Using Improved VIBE Algorithm	• Mohammad Aftab Hayat • Goutian Yang • Atif Iqbal Adeel Saleem	2019	This paper proposes a novel method for drowning person detection in the swimming pool using video images. Static and dynamic features are detected to recognize the normal swimmer and drowning person.	Great engineering application value.	stationary targets, shadow foregrounds and incomplete moving targets.	An improved VIBE swimmer detection algorithm is used.
A Smart Multi-Sensor Device to Detect Distress in Swimmers	• Salman Jalalifar • Afsaneh Kashizadeh • Ishmam Mahmood	2022	This paper proposes a robust and waterproof sensor-based device to detect distress in swimmers at varying depths and different types of water environments.	The threshold values could be adjusted based on biometric parameters such as swimming conditions (swimming pool, beach, depth, etc.) and swimmers health and conditions.	Very Sensitive to Extreme Environmental Changes	The proposed device uses four main components, including heart rate, blood oxygen level, movement, and depth sensors. these sensors are designed to work together to boost the system's capability
An Automatic Video-based Drowning Detection System for Swimming Pools Using Active Contours	• Nasrin Salehi • Maryam Keyvanara • Seyed Amirhassan Monadjemi	2016	The presented software can detect drowning person in indoor swimming pools and sends an alarm to the lifeguard rescues if the previously detected person is missing for a specific amount of time.	Robust and overcomes occlusion	Need to overcome noise.	Our method uses a HSV thresholding mechanism along with Contour detection to detect the region of interest in each frame of video sequences
Automated Vision based Swimming Pool Surveillance System	• Darshan V • Sai Anish R • Sidarmanguda • Achinthya Holla • Swetha T	2021	The system will contain a mesh which will help the drowning person to lift up in the water controlled by the stepper	maximum avoidance of bias.	Errors are possible	uses machine learning and mesh lifting system to prevent drowning incidents.

			motors are connected to the Arduino Nano board, and there will be buzzer that will alert the people near swimming pool			
Near-drowning Early Prediction Technique Using Novel Equations (NEPTUNE) for Swimming Pools	• B David Prakash	2018	Describes a near-drowning early prediction technique using novel equations (NEPTUNE). It uses equations detects neardrowning using at least 1 but not more than 5 seconds of video	Very accurate	Possibility in delay in time.	Technique using novel equations (NEPTUNE) and K-means clustering to extract segments in the merged image.