Ideation Phase

LITERATURE SURVEY

Date	19 September 2022
Team ID	PNT2022TMID30129
Project Name	Project – Virtual Eye – Lifeguard for Swimming Pool To Deduct Active Drowning
Maximum Marks	4 Marks

Detection of early dangerous state in deep water of indoor swimming pool based on surveillance video (Fan Wang ET AL,14 JUNE 2021)

This paper gives an outlook for early detection of dangerous condition in the deep-water zone of swimming pool based on video surveillance. This paper proposes feature extraction, feature expression and assessment criteria, which includes a method for evaluating normal swimming speed based on the time series of swimmers, a method for calculating an upright state that is not limited by the camera angle, and the rules for evaluating dangerous state. They collected real-life data from the swimming pool and conducted experiments related to it. This method can easily and efficiently detect the swimmer who is in danger at an early stage and provide necessary rescue reminders to lifeguards on time.

Automated and Intelligent System for Monitoring Swimming Pool Safety Based on the IoT and Transfer Learning (Aziz Alotaibi,6 DECEMBER 2020)

Recently, desegregation the net of Things and pc vision has been created use in pool automatic police investigation systems. many studies are place forth to beat off-time police investigation drowning prevalence supported employing an order of videos to trace human motion and position. This paper proposes associate economical and reliable detection system that produces use of one image to seek out and classify drowning objects, to stop drowning prevalence. The projected system utilizes the IoT associated transfer learning to supply an intelligent and automatic answer for off-time observation pool safety. additionally, a specialised transfer-learning-based model utilizing a model pretrained on "ImageNet", which may bring out the foremost helpful and sophisticated options of the captured image to differentiate between humans, animals, and different objects, has been projected. The projected system aims to scale back human interference by process and causing the classification results to the owner's mobile device.

The Visible Behaviour of Drowning Persons: A Pilot Observational Study Using Analytic Software and a Nominal Group Technique (Aida Carballo-Fazanes ET AL,22 SEPTEMBER 2020)

This was Associate in Nursing associate experimental study of drowning videos determined by twenty international specialists within the field of water safety. For measuring, every video was analysed with Lance observation software system by four participants. A Nominal cluster Technique generated input for the chemical analysis and also the 2 principal investigators conducted a post-hoc analysis. study confirms previous assumptions of drowning behaviour and provides novel evidence-based info

regarding the massive type of visible behaviours of drowning persons. New behaviours, that primarily embody high-frequency resurfacing throughout a struggle for fewer than two min and backward water edge, are recognised during this study.

Computer Vision Enabled Drowning Detection System (Upulie Handalage ET AL,2021)

The current systems expected to handle the matter of guaranteeing safety at swimming pools have vital issues thanks to their technical aspects, like underwater cameras and method aspects like the requirement for human intervention within the rescue mission. the employment of an automatic visual-based observation system will facilitate to scale back drownings and assure pool safety effectively. This study introduces a revolutionary technology that identifies drowning victims in a very minimum quantity of your time and dispatches an automatic drone to save lots of them. mistreatment convolutional neural network (CNN) models, it will notice a drowning person Whenever such a scenario like this is often detected, the expansive tube-mounted self-driven drone can endure a rescue mission, sounding Associate in Nursing alarm to tell the near lifeguards. The system additionally keeps a watch out for probably dangerous actions that would lead to drowning. This system's ability to save lots of a drowning victim in underneath a second has been incontestable in example experiments' performance evaluations.

The Swimmers Motion Detection Using Improved VIBE Algorithm (Atif Iqbal ET AL,17 NOVEMBER 2020)

This paper planned a unique methodology for drowning person detection within the swimming bath victimisation video pictures. For background extraction and to update the precise motion space from the complete video victimisation frame by frame distinction ambiance algorithmic rule is employed. Static and dynamic options are detected to acknowledge the conventional swimmer and drowning person. the current invention discloses video-based swimming pools drowning event detection methodology. within the detection method Time of map (Tom), the strategy is employed to enhance the standard ambiance result. The sequence of video pictures of the swimming bath is collected in time period by employing a camera put in higher than the water surface, that principally includes 3 steps of swimmer's detection, swimmers trailing and drowning person behaviour analysis. within the side of swimmer detection, AN improved ambiance swimmer detection algorithmic rule is planned, and therefore the algorithmic rule is employed to work out the swimmer's position. The swimmer trailing and particle filter supported the colour distribution model that is combined with the closest neighbour information association algorithmic rule to realize trailing of multiple swimmers. within the analysis of drowning behaviour, 3 characteristics of drowning behaviour are planned to work out whether or not the swimmer is drowning. The invention will monitor the swimming bath in time period through the camera put in higher than the water surface in a very real public swimming place, and mechanically discover the drowning person, that has nice engineering application worth.

A novel drowning detection method for safety of swimmers (Ajil Roy ET AL,16 DECEMBER 2018)

Effective drowning detection ways area unit essential for the security of swimmers. during this paper, a unique style of drowning detection technique addressing several limitations of prevailing drowning detectors is projected. The projected technique ensures detection of drowning and news at the sooner stages. The projected drowning detection technique is additionally a generic resolution that suites totally different water bodies from pools to oceans, and an economically viable technique helpful for each low- and middle-income countries. The paradigm of the drowning detection technique is developed and model of the system is simulated in Proteus style suite. The results of the simulation and hardware experimentation are according.

Automated Vision-based Surveillance System to Detect Drowning Incidents in Swimming Pools (Abdel Ilah N.Alshbatat ET AL,26 JULY 2020)

This paper projected an amount system that will track swimmers throughout a pool victimization machine learning techniques and prevents drowning accidents is projected. The system consists of a Raspberry Pi with the Raspbian package, a Pixy camera, Associate in Nursing Arduino Nano board, stepper motors, Associate in Nursing device, and motor drivers. The projected system depends on the colour-based formula to position and rescue swimmers World Health Organization unit of measurement drowning. The device then sends Associate in Nursing alarm to the lifeguards. The results from experiments indicate that the system contains a particular capability to look at and track swimmers, thereby enabling it to mitigate and curb the number of deaths by drowning.