

Drowning monitor system

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Abstract—people are lost their life because there is no proper and an effective lifeguard in the outside .most of the cases are in aquatic environment like waterfalls,rivers,oceans ,beaches etc.so the proposed idea is to monitor the person from outside the water surfaces by an monitoring camera and if any people is struggling or disappearing from the surface it will intimate the lifeguard and it will help the lifeguard also to get in rescue so were are using an faceSDK .FaceSDK is used in hundreds of applications for identifying and authenticating users with webcams, looking up matching faces in photo databases, automatically detecting facial features in graphic editors, and detecting faces on still images and video streams in real-time. FaceSDK has been used for building secure identification, surveillance, time and attendance control systems

Keywords—monitoringsystem,FaceSDK,photodatabase,
real-time recognition

I.INTRODUCTION

In today's scenario, there are risks at every moment in our life. People rambling around are found insecure, especially at remote outdoor locations where there is no rescue services provided. One of these scenarios is an aquatic environment such as waterfalls, lakes, trekking, remote locations, water parks, swimming pools, beaches, etc. Many lives are at risks in spite of lifeguard resources. This paper reports a developed real time lifesecure and tracking system for swimmers.

II. Reasons for DrowningA.Location

The highest risk locations for drowning vary by age. Among infants under 1 year old, two thirds of all drownings occur in bathtubs. Most drownings happen in home swimming pools among children ages About 40% of drownings among children occur in natural water, and about 30% occur in swimming pools.More than half of fatal and nonfatal drownings among people 15 years and older occur in natural waters like lakes, rivers, or oceans

B.Not wearing life jackets

Life jackets can prevent drowning during water activities, especially boating and swimming. The U.S. Coast Guard reported 658 boating-related deaths in 2021—81% died by drowning, and 83% of these people were not wearing life jackets.

C.People with seizure disorders or certain medical conditions

People with seizure disorders such as epilepsy are at a higher risk of

fatal and nonfatal drowning than the general population. Drowning is the most common cause of unintentional injury death, with the bathtub being the most common site of drowning, for people with seizure disorders. Other conditions such as autism and heart conditions are associated with a higher risk of drowning

II. Types of lifeguards

A. Biomedical Technology

In this lifeguards they are using an three wearables for the swimmer if there is any movement or changes in their body they start to work and intimate the lifeguards the information can be send to the boat controllers and they came in resume. This proposed prototype system monitors the individual's situation in any aquatic environment especially near beaches. This approach consists of three main modules namely, wearable module, standstill and monitoring system. Biomedical approach is used for detection of life threatening incidents. This wearable device uses several sensors to measure different vital physiological parameters of human body and sends an immediate wireless signal to the lifeguards to provide rescue service to the individuals in danger. This device sends and

alarm to a receiver unit besides this, there is also a LED which blinks in any chancy situations which is connected to the standstill system and also the monitoring system. The wearable device is battery operated. A prototype of this system is tested with good results.

B. robots

They are invented to check in underground water if they detect that peoples are drawing they came rescue the people

The number of people drowning in the sea or in lakes rises from year to year. However, drowning also occurs in private or public swimming pools. According to the statistical data, an average of

more than 400 people drown in Germany every year. The numbers are similar for other countries across the world or even higher. On the other hand, the number of lifeguards decreases every year around the world majorly due to the shortage of trained personnel. Some of the tasks of a human lifeguard can be addressed by robotic systems,s. This like detecting an emergency, approaching the target person quickly in the water, securing the person and bringing the target to a safe position. Therefore, we designed, built and tested a robotic underwater

vehicle for autonomously rescuing people from drowning. This rescue vehicle uses an external camera system to detect a drowning incident above the water and then sends the robotic vehicle to the detected position. After reaching the target position, the vehicle detects the person based on sensor data

(camera, position, orientation), picks the person up and returns it to the surface. There, the person will be rescued by lifeguards who have been alerted automatically in the meantime. A second version of the vehicle will be suitable adapted for supporting rescue forces in search and rescue missions in open water version will therefore be larger and equipped with various other sensors, such as sonars or a GPS system. As a first step of the development, an existing underwater vehicle was modified by adding a top side rescue device, which can be used to securely lift a person underwater to the surface and stay in position until human lifeguards arrive. With the rescue device, it is possible to test the ascending behavior of the vehicle and the secure lift of a person on the rescue system.

Proposed method

In the proposed method we are going to fix an camera which is not only recording the video but also detect the object and the people

If the people are drawing or disappeared for a certain moment this will intimate the lifeguard .

A. Monitoring system

The monitoring system can be fixed in the the lifeguard house or light house to get the better view of the thing and it can detect varies objects like boat,people,chair ,etc which arein the coverage of the camera .

B. intimation to lifeguard

As per the data if the people are drowning or disappeared for few seconds it will indicated in red square and also show the lifeguard at which place it is and help tofasten the rescue process.

So when the monitor consists of an camer which can detect the people with facial recognition and also identify the movement of it first separate every thing whether it is an object or a person. If the person which are detected are monitored and it can see thing more than 8 times an people can see once the detected peron movement like drowning or we can set times whether a person disappear for more than a certain limit it will give an alert to the lifeguard and also shows with an help of application it will where its actually happening which results in one time rescue and safe the people.

that discerns which parts of an image or video are needed to generate a faceprint. Once identified, the new faceprint can be compared with stored faceprints to determine if there is a match

After getting the face-embedding vectors, we trained a classification algorithm, K-nearest neighbor (KNN), to classify the person from his embedding vector. Suppose in an organization there are 1000 employees. We create face-embeddings of all the employees and use the embedding vectors to train a classification algorithm that accepts face-embedding vectors as input and returns the person's name

C. Detect and Recognize Faces with Luxand FaceSDK

FaceSDK enables Microsoft Visual C++, C#, Objective C, Swift, Java, VB, Delphi and Python developers to build 32-bit and 64-bit applications for Web, Windows, Linux, macOS, iOS and Android with face recognition and face-based biometric identification functionality

D. Passive Liveness Detection

Passive liveness detection is the most sophisticated anti-spoofing technology. It does not require any special hardware, nor does it ask users to perform any actions to prove the liveness - it just works as-is by analyzing images.

Face detection -- also called facial detection -- is an artificial intelligence (AI) based computer technology used to find and identify human faces in digital images. Face detection technology can be applied to various fields -- including security, biometric law enforcement, entertainment and personal safety -- to provide surveillance and tracking of people in real time. Face detection has progressed from rudimentary computer vision techniques to advances in machine learning to increasingly sophisticated artificial neural networks and related technologies; the result has been continuous performance improvements. It now plays an important role as the first step in many key applications -- including face tracking, face analysis and. Face detection has a significant effect on how sequential operations will perform in the application. In face analysis, face detection helps identify which parts of an image or video should be focused on to determine age, gender and emotions using facial expressions. In a facial recognition system -- which maps an individual's facial features mathematically and stores the data as a faceprint -- face detection data is required for the algorithm