INTERNATIONAL LIFE SAVING FEDERATION

LIFESAVING POSITION STATEMENT – LPS 22

TECHNOLOGY IN LIFESAVING

NOTE: Lifesaving Position Statements are intended only for trained lifeguards with a duty to respond.

PLAIN LANGUAGE STATEMENT

New technologies are providing lifeguards with tools to assist with surveillance, prevention and rescue techniques but are not a substitute for lifeguards. Listed below are types of technologies that have been or are being developed.

BACKGROUND

Technology has evolved throughout the twentieth and twenty-first centuries, entering into the world of water safety throughout.

Technology provides several functions that can improve safety and support Lifeguards/Lifesavers and those responsible for water surveillance and rescue.

ILS supports the use of technologies used by/alongside personnel that provide surveillance and recommend that technology does not entirely replace personnel.

There are many types of technology systems, with more developing every year. Technology tends to fall into the following categories and can be used in a number of environments:

Type of technology	Action	Area of use
Computer vision drowning detection Camera(s) track the movements of swimming pool users and in the event of an incident raise an alarm.	Surveillance	Swimming pool
Personal drowning detection Wearable device detects when a water user is submerged underwater for a long period of time and raises an alarm.	Prevention Surveillance	Swimming pool, open water
Rip current and people detection Artificial intelligence detects the occurrence of rip currents and the entry of people into the rip current area in real-time. This information is communicated to the wearable devices, etc.	Prevention Surveillance Rescue	Beach
Crowd counting Artificial intelligence counts people. This information is collected on the database platform.	Surveillance	beach
Risk forecasting Predicting dynamic risk including the occurrence of rip current on beaches are evaluated using the analysis of various data, numerical simulation and artificial neural networks.	Prevention	Beach
Drone	Surveillance Rescue	Offshore, beach, open water, rivers

An aircraft without any human pilot, crew or passengers on board. Controlled by a ground-based person that has the view created by a drone camera. Some drones carry objects that can be dropped to aid rescue e.g. torpedo buoy		
Robot A rescue robot with a float function can rescue a drowning person by remote control. Also, a self-propelled rescue robot that can automatically detect and rescue drowned people is under development.	Surveillance Rescue	Pool, offshore, beach, open water, rivers
GPS tracking GPS is useful for tracking the path of a missing person caught within currents. It is possible to focus the resources/personnel to search areas of high probability.	Rescue	Offshore, beach, open water
Thermal imaging system Thermal cameras positioned in water detect objects passing by which are warm, such as a body that recently entered the water. An alarm is raised when a detection is made.	Surveillance	Open water, rivers
Automated float device Floating devices automatically inflate in case of an emergency. These are various types such as bottles, watches and vests.	Prevention	Pool, beach, offshore
Communication tool Digital signage and smartphone apps provide various information on weather, surf conditions, hazards, marine creatures, flags, signs and more. This app help swimmers, surfers and other water users.	Prevention	Pool, beach
Data collection Collecting electronic data using software and apps is useful for lifeguard activities. It enables simpler data analysis and helps prevent drowning.	Prevention	Beach

Selecting technology

ILS recommend that when choosing to use technology careful consideration is given to ensure the system is fit for purpose and will enhance safety.

The following key principles can be followed:
1. Review local government regulations or legalisation
2. Consider the need and select a system suitable for the facility, environment and personnel
3. Liaise with supplier and manufacturer to ensure the system is suitable
4. Once installed, carry out full testing to ensure the system is fully operational as per specification
5. Ensure compliance with manufactures guidance
6. Create risk assessment and safety procedures for the use of technology
7. Ensure all Lifeguards/Lifesavers or personnel who will use the system receive training and are deemed as competent
8. Arrange regular the testing of the system to ensure it remains fully operational
9. Monitor the system's use and effectiveness regularly (including personnel feedback)

Technology for education and training

Technology is also used for education and training, examples are detailed below:

- eLearning
  Learning or training conducted via electronic media, typically on the internet.

- Virtual reality
  A simulated experience that can be similar to the real world. A person using virtual reality equipment will look and move around the artificial world.

- Hazard perception
  Training provides the learner with a video of an environment, in which they will need to identify hazards that occur.

STATEMENT

1. ILS supports the use of technologies used for water safety

2. ILS recommends that technology does not entirely replace personnel

3. ILS does NOT endorse any particular technology

4. ILS recommend that those selecting technologies ensure it is fit for purpose and suitable for the facility and environment

Approved by the ILS Board of Directors: 24/09/2022