Development of an Advanced Life-Jacket to Enhanced the Sea Survival

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This project aims to develop an advanced smart life jacket with cutting-edge technologies to enhance the chances of survival of individuals lost at sea that count for 320,000 worldwide deaths annually. Several challenges face the lost persons, such as cold water, shark attacks, and being invisible for rescue ships at night. Rather, current life jackets lack advanced features to aid in survival and rescue operations. The Smart Life Jacket integrates: a GPS module for precise location tracking that works with an accuracy 95%; a heart rate sensor to monitor vital signs with an accuracy 94.7%; a water level sensor to detect if the wearer is floating or submerged that works with an accuracy 98%; and a light system to draw attention of nearby ships. Additionally, a heating system has been included to counteract the impacts of low seawater temperature; providing a walkie-talkie to converse with the lost person to prevent panic attacks. The system works with an average time response of two seconds. The advanced Smart Life Jacket represents a significant advancement in sea survival technology. Its innovative features—including the integration of a flexible solar panel for sustainable energy and a communication device using LORA Modulation—have the potential to save lives in sea emergencies. The incorporation of an electromagnetic field coil to repel sharks adds an extra layer of safety for individuals at sea. Finally, the cost of the Smart Life Jacket as a prototype is USD 120, and as a product USD 25.