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Smart Life Saver Jacket

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ABSTRACT
Smart Life saver jacket for Airplane (or) Fishermen. In this Smart life saver jacket, implementing the tracking device, pulse detector, body temperature detector, water temperature detector, Peltier module, Electrical shock device, these devices are inbuilt in that jacket. The tracking device is used to track the person from the land, Arranging a tracking guide camp in land to watch the peoples are enter into the sea. Pulse detector is also watched by the tracker while the persons pulse level is normal or not. And the temperature detector is used to calculate the water temperature and persons body temperature, this is used to rescue the person immediately or the person will be died easily by the hypothermia(a killing cold) etc., so guider camp trace this signals to save the person quickly from water. Electrical shock device is used to rescue the person from sharks by releasing the some kind of electric shock, it divert the sharks when it comes closer to the person (In Sea areas), it will not allow the sharks nearer to the persons. This Smart Life Saver jacket will allocated compulsory in all the water vehicles to save the peoples.

I. INTRODUCTION

Smart Life Saver Jacket will be very helpful for fishermen who are far away from lands by tracking their live locations with some safety devices to find the persons individually as soon as possible. This device is not implemented anywhere in the world until now. People life is very precious and it cannot be replace with any other things. So, that's the reason for taking this project idea.

II. WORKING

The working plan is to connect all the device into that jacket and make the device waterproof, then first testing the Smart Life Saver Jacket in the network accessed area and increasing the network range into the sea to track this Smart Life Saver Jacket.

Fig.1. Workflow methods of all components

In thefig.1 the components are implemented to the life jacket based on the all the different various sizes. The life jacket sizes are varied by the kilogram of human weight. The lifejacket is floated on above the water surface and this electronics components are covered by some waterproof material and placed into small size box. The sensing device's leads are fixed externally in such a way so that the device helps in detecting humans pulse and temperature. The device is usually placed behind the neck so that the device can be able to pick up carotid pulse easily, the life jacket are dipped under water nearly 50 – 80 % while falling into the water.

The components are implemented on various places of the life jacket, the formations of the partial devices are programed to initially track the life jacket location. Whenperson dive into the water, the electronic devices are activated to detect the various processes in the sea area and the person need to manually push the panic button when the person is distant from the range. The person are saved by the others, if the person partially floated away through sea waves at the time of incident the panic button used to share the information to the persons relatives.

Electronics components need the power to share the information continuously, by using of long term rechargeable battery. Battery is recharged by Peltier module. The working of peltier module is used to generate the voltage by two ways, if the device is placed under water it generates some voltage and same techniqueis applied when the device is in top of the lifejacket powered by sunlight and it also generates the voltage. These are used to recharge the battery for the whole components to activate to share the information.
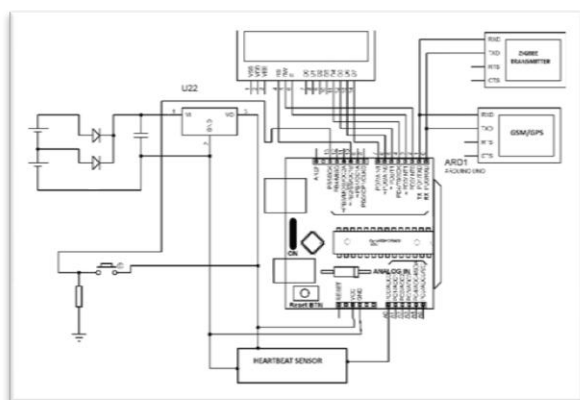

Fig.2. CIRCUIT DIAGRAM

The above circuit diagram helps us to understand the connection between each device and the functioning of the device. The pin connections for the all devices are shown in the above fig.2 this helps to program the circuit by the allocations of our comfortable ports in the Arudino Mega.

III. APPROACHING METHOD

From this Project work, theapproaching method is different from the sensor corporation, and this paperwork denotes that the prototype needs some components to be built for the lifesaving jackets
1. Arduino UNO
2. Pulse sensor
3. Body temperature sensor
4. Water temperature detector
5. Life jacket
6. GPS Module & ESP8266 Wi-Fi Shield
7. Peltier Module
8. Zigbee Transmitter
9. Rechargeable battery (lithium)
10. LCD
11. Power supply
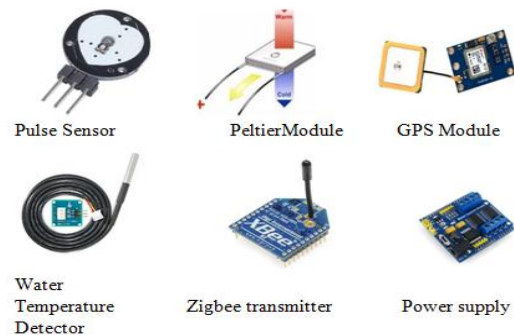12. Electrical shark repellent device

Fig.3. Proposed Sensors and Components

The panic button triggers the used sensors includes the microcontroller Arduino UNO will get powered by a battery also recharged by the Peltier module and it will start communicates with sensing devices that are attached to the circuit. The water degree is measured by the water temperature sensor and body temperature are also used to detect the body temperature, these degree values are varies at different conditions. The device also senses the body pulse rate for the human body will lead the person to the critical conditions by various temperature will occur in the sea.

The Arduino Mega and all other sensing devices are recharged by the Peltier module. The Peltier is used to create the heat flux of the two types of materials. A Peltier is used to generate electrical energy by the flow of heat pump from one side to another side. It is also used as a thermoelectric generator, the heat pumping is used to continuously generate the electric energy to the battery used in the lifejacket.

The Peltier circulates the electric energy while it placed in the underwater either top of the lifejacket. If the Peltier is placed inside the jacket it generates the energy by cooling effect of the water. Otherwise, it placed top of the jacket is used to generate the energy by the hot surface of Peltier to transfer heat from one side to the other side of the Peltier surface. Inside the Peltier module the two types of semiconductors are used. They are p-type and n-type semiconductors, these two semiconductors are covered by Electrical conductor and Electrical Insulator. The output terminals are connected in the electrical conductor, these terminals are connected to the circuit needs electrical energy. There is various technique are available for recharging the battery. But the Peltier is very small and portable, its weight is less and low cost.

This Peltier module is used in two ways while comparing to one-way rechargeable devices.so the main purpose of the Peltier module is using in this smart Lifesaver jacket.
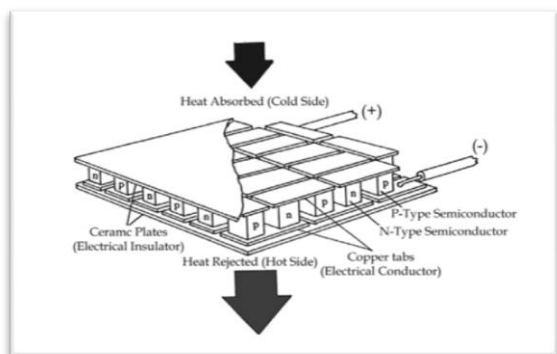

Fig.4.Peltier module

The sensed devices are gather all the details ready to send the message to the receiver through the zigbee transmitter, the Wi-Fi module is used to receives the information from the transmitter and the starts to take the URL link to the website for finds the location of the life jacket by locating the longitude and latitude
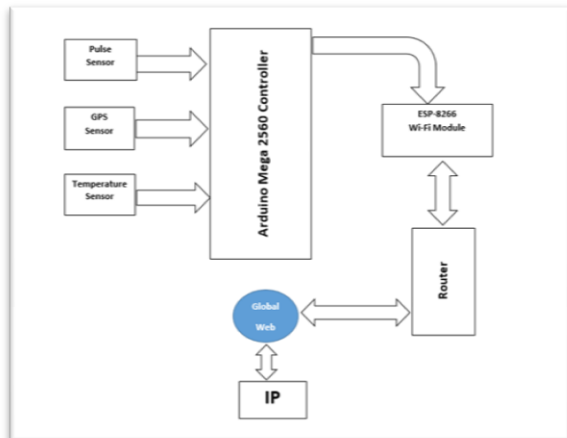

Fig.5. Block Diagram of Suggested Methodology

IV. EXISTING METHOD

The same related project is implemented in the coal miners to save from the various health problems, Example: hazardous gas. With the help of this project, the smart lifesaver jacket is implemented in the sea area. The reference project is based on the experiment for saving the person who works in the mines and This method is used to develop the basic ideas to save the people will suffer from danger, this existed technique used to find the solution for saving the people in the sea areas and this project is the main purpose for the fishermen's.

The crashed airplane will found by tracking the Black box. With the help of these smart lifejacket will save the persons immediately and individually by tracking the GPS location with the person's health details.

V. PROPOSED METHOD

In this project smart life saver jacket is used to rescue the people immediately without depending on the **BLACK BOX** to find the airplane crashed location. This jacket used to track everyone location and also implement in the fishermen's boat for rescue the people in fishing area.

VI. FINAL RESULTS

The final results are achieved by tracking the smart lifejacket location with sensing details of the sensors. For checking the pulse sensor wear in their finger on pulse sensor device and this sensor shows the actual pulse rate on the specified receiver through IoT. The Exact Location of the tracking device is similarly tracing out by this device at different locations; this sensor provides longitude and latitude coordinates as shown in the below-mentioned fig.6.

Fig.6. Final Results receives through Dynamic IP

The Exact Location of GPS are mentioned in below are 11.66 and 78.18 are the exact location of lifejacket are detected and these longitude and latitude values are entered on Google, it may show the exact pin location of life jacket detected, this jacket is recently worn by experimental performers as shown in the below fig.7.
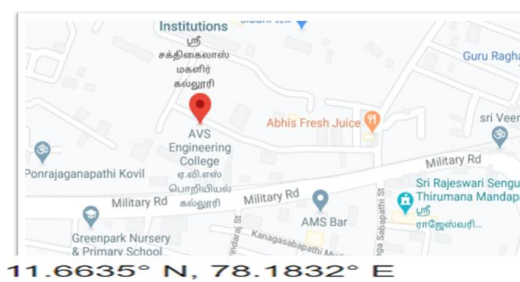

Fig.7. Exact GPS locationof AVS Engineering College, Ammapet

Moreover, this system had also been tested at AVS Engineering College, Ammapet where a student carried this smart lifejacket for the various

places for testing the tracking and sensors in the below-mentioned values of latitude and longitude were taken as shown in the below-mentioned fig.8.

Fig.8. Latitude and Longitude Values received at IP

When traveling in an airplane or especially in sea area while the airplane gets crashed into the sea, these smart lifesaver jacket is used to escape from drowning into the water and it automatically tracks the location. This effect causes the arrival of sharks in drowned and lack of body temperature reduced. Lots of accidents have already been reported in such work. Rescue teams spend a lot of time-saving the person from the sea. To overcome this problem, introducing a GPS tracker with Zigbee transmitter and also monitor the pulse rate of person who wears a smart lifesaver jacket will provide quick medical treatments by the rescue team. In this paper the main purpose is rescuing the influenced fishermen's inside the sea. Hence provides the needed parameters for the fishermen's airplane crashes to know about their health status of pulse rate and body temperature. The proposed method is used to overcome the problem to rescue the persons as soon as possible by the rescue team.

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