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AMBUBOT REPLACING AMBULANCES FOR EMERGENCY

M.JAIGANESH[1], D.PRASANTH [2] , B.AJITH SAI[3],K.SAI RUSHIDHAR[4],G.LOHITH [5]

[1], Assistant Professor, Department of Electronics & Communication Engineering, Panimalar Engineering college, Chennai, Tamilnadu -600123

[2, 3, 4, 5] UG Students, Department of Electronics & Communication Engineering, Panimalar Engineering college, Chennai, Tamilnadu -600123

Abstract –

In the proposed project, an automated external defribillator ambulance usually called as ambubot to overcome the difficulties that is currently present those who are subjected to cardiac arrests .In this living world it is very difficult for the emergency vehicle to come at the place on time to rescue the person subjected to cardiac arrest.It is getting extended those who are living in highly mobile areas where it is highly difficult for the ambulance to come on time .So to overcome all the problems am ambubot is designed that senses the patient with cardiac arrest with exact distance of the patient and it start moving towards the patient,once the ambubot reaches and senses the patient,the defribillator is given to the patient. In previous existing system there is no such cases where an ambubot sending an alert to the organization web page, if the patient is attacked with cardiac arrest within that organization.Here the ambubot sends an alert notification to the organization webpage so that an immediate action can be **taken.**

***Key Words*: Ambubot,Defribillator ,Cardiac arrest,Webpage**

1.INTRODUCTION

Emergency situation refers to any unforeseen event that can jeopardize and bring significant injuries on a person's life. This situation can be broken down into two basic categories, natural and manmade calamities. Natural calamity is the phenomena of nature caused by environmental factors that can bring catastrophic consequences. While the world population grows rapidly with increasing their concentration in hazardous environments without giving much consideration to the local geo-climatic conditions have exacerbated the devastation caused by natural calamities.

This is mainly due to many obstructions during the process of dispatching and it may defer the patient from receiving the service on time. The delay is largely subjected on a various factors such as the long distance, traffic congestion, and difficulty to locate the address. Any one of these delays can lead to increase in response time. The ambulance has to transport the patient to the hospital as quickly and safely as possible. However, in many cases like life-threating emergencies the patient needs immediate first aid and medical attention to prevent serious danger.. In contrary, double-phase waveforms produce a low energy output. This output shocks heart twice at the same time and decreases the complication caused by the defibrillator. According to the guideline of using the AED, the helping person needs to call for ambulance immediately even before applying the AED. In the case of existence of two helping people, one is advised to call for ambulance while the other one is dealing with the AED. Though AEDs are deemed as medical devices, yet lay people can use these. However, it would be better if it were doing by someone who has completed a first aid training course. Despite the fact that AEDs are located in many public places, in practice it is difficult for people to find these in an emergency situation. It is due to the initial panic that often occurs when people are faced in such circumstances. In order to mitigate those problems and keep patient staying alive before the advent of ambulance, we propose an idea of using Ambubot (Ambulance Robot) that could bring an AED and according to our long-term plan it would be able to perform CPR to a person in cardiac arrest, which is shown in Figure 1.obstructions during the process of dispatching and it may defer the patient from receiving the service on time. The delay is largely subjected on a various factors such as the long distance, traffic congestion, and difficulty to locate the address. Any one of these delays can lead to increase in response time. The ambulance has to transport the patient to the hospital as quickly and safely as possible. However, in many cases like life-threating emergencies the patient

needs immediate first aid and medical attention to prevent serious danger.This device can generate single-phase and double-phase waveforms.Single-phase waveforms generate a high-energy output. It may cause damage to the heart and skin. In contrary, double-phase waveforms produce a low energy output. This output shocks heart twice at the same time and decreases the complication caused by the defibrillator. According to the guideline of using the AED, the helping person needs to call for ambulance immediately even before applying the AED. In the case of existence of two helping people, one is advised to call for ambulance while the other one is dealing with the AED. Though AEDs are deemed as medical devices, yet lay people can use these. However, it would be better if it were doing by someone who has completed a first aid training course.

2.EXISTING SYSTEM

In the case of health emergency situation, it is common to call the emergency hotline to seek for assistance which often the ambulance will be dispatched to the scene in average of ten minutes time. Details of that information are depicted for various territories. In practice, the advent time of ambulance is far above the ten minutes standard. This is owing to many obstructions during the process of dispatching an Ambulance and it may defer the patient from receiving the service on time. Substantially different factors prevail in this issue ranging from traffic congestion, difficulty to locate the address, long distance, and so forth. Any one of these delays can lead to increase response time. Meanwhile, it is a very hard task for bystanders to locate the nearest Automated External Defibrillator (AED) in a situation where someone is suffering from sudden cardiac arrest.

2.1 DISADVANTAGES

It takes more time.
It is not autonomous.
Identification of location is very difficult

2.2 LITERATURE SURVEY

Hosoe Shigeyuki *et al* [1] proposed that, in aging societies, there is a strong demand for robotics to tackle problems caused by the aging population. Patient transfer, such as lifting and moving a bedridden patient from a bed to a wheelchair and back, is one of the most physically challenging tasks in nursing care, the burden of which should be reduced by the introduction of robot technologies. We have developed a new prototype robot named RIBA with human-type arms that is designed to perform heavy physical tasks requiring human contact, and we succeeded in transferring a human from a bed to a wheelchair and back. To use RIBA in changeable and realistic environments, cooperation between the caregiver and the robot is required. The caregiver takes responsibility for monitoring the environment and determining suitable actions, while the robot undertakes hard physical tasks. The instructions can be intuitively given by the caregiver to RIBA through tactile sensors using a newly proposed method named tactile guidance. In the present paper, we describe RIBA's design concept, its basic specifications, and the tactile guidance method. Experiments including the transfer of humans are also reported.

H. Ning Abstract *et al* [2] proposed that development of Informa ionization and intelligentization prompts Internet developing toward a new era. A deep fusion among cyber space, physical space, social space, and thinking space brings a quaternionic cyber-physical-social thinking hyperspace, based on which an embryo of smart world is being established through heterogeneous spaces. The smart world is expected to be an attractive perspective involving ubiquitous sensing, computing, and communication to achieve comprehensive interconnections of physical perception, cyber interaction, social correlation, and cognitive thinking. In this paper, evolution of the smart world is briefly introduced, and physical-based coordination, social inspired interactivity, brain-abstracted cooperativity, and cyber-enabled homogeneity are, respectively, discussed as the main characteristics of the smart world.

3.PROPOSED SYSTEM

As mentioned earlier, we used Ambubot as a platform to save someone's life during cardiac arrest. There are two techniques that can be used to keep cardiac arrest victims alive either by body-attached sensor or mobile phone application, as pictured in the sectional view. Whenever one of them is used, they will immediately send out warning message and indoor navigation information to Ambubot center. Ambubot center will convert the longitude and latitude coordinates into a map location using a Zigbee. In the case of using the body attached sensor acceptable as fall sensor, this location could be integrated with other basic information about the victim such as personal contacts and characteristics, blood type, height, weight, and photograph to generate the complete information needed for search and assistance tasks. After Ambubot

center processes this data packet, it will generate two commands namely a command for dispatching Ambubot from the station to the scene as precaution to save patient life before ambulance arrives and other command for delivering an emergency message to family members via Global System for Mobile Communication (GSM) so they can obtain relevant information concerning the falling person via mobile phone. Family members will be alerted through this message in case of victims have been mounted with the body-attached sensor. We also consider informing ambulance from the nearest hospital after confirmation of the incident. Ambubot is capable of driving up to 10 km/hour and passing slopes up to 45 degrees. With faster maneuverability, this robot can be driven on rough terrains and capable of climbing up the staircases to mitigate the late-nests problems of the ambulance. Fig 3.1 and 3.2 shows the Block diagram of Transmitter section and Receiver section

3.1 PROPOSED SYSTEM ADVANTAGES

1. Fast response time

2.Fully autonomous

3.It is simple and effective method

FIG 3.1 BLOCK DIAGRAM OF TRANSMITTER

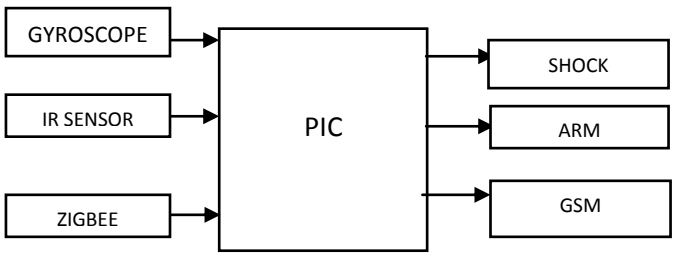


FIG 3.2 BLOCK DIGAGRAM OF RECEIVER

Fig 3.1 shows the block diagram of the transmitter,in which a heart beat sensor is used to sense the pulse of the heart, a zigbee is used to the transit the signal to the ambubot .Fig 3.2 shows the block diagram of the receiver in which a gyroscope is used , if the ambubot looses the track the gyroscope intimates that the ambubot is loosing the track an an intimation message is sent .

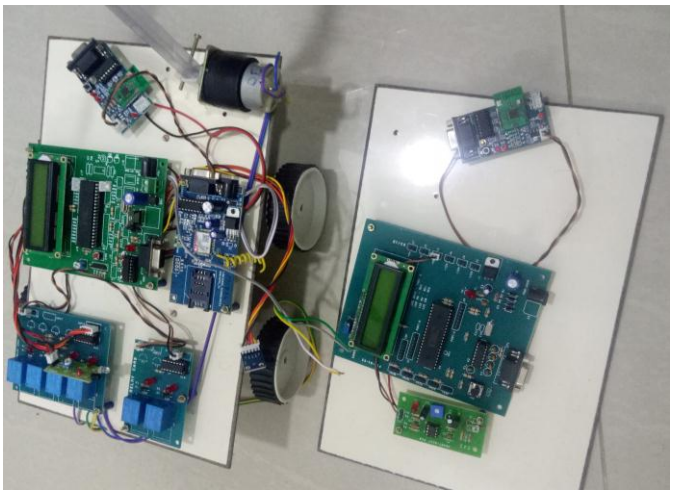


Fig 3.3 ambubot

4.DESCRIPTION:

In this proposed content, the ambubot in the ambu station receives signals from the transmitter i.e, from the patient once the heart beat sensor senses the pulse of the patient(Fig 4.2 shows the pulse is increased than the normal value(35), and transmit signals through zigbee and pic controls. The receiver gets signals and the position of the patient is identified .then the ambubot in the ambu station starts moving towards the patient ,before departing from the ambu station an alert message is sent to the guardian of the patient stating that the patient is in emergency situation.an alert message is also sent to the organization web page. Through zigbee the signals from the transmitter is transmitted to the receiver side.

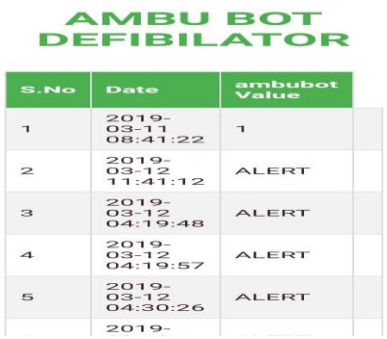
Fig 4.1 Emergency alert for family members

Fig 4.1 shows that the ambubot sending an alert message to the family members.BY doing so the family

members will let to know that there is an emergency and necessary action should be taken.

5. RESULT:

In this proposed system ,when the pulse of the patient is increased than to the normal pulse a signal called emergency is sent to the ambubot, the ambubot then calculates the distance of the patient using gsm and sends an emergency alert to the respective number ,also sends an alert to the institution web page.Fig 4.1 shows that sending an alert to the web page.And ambubot gets to the location of the patient .once the patient body is sensed a shock is given to the patient on the chest.


AMBU BOT DEFIBILATOR

S.No	Date	ambubot Value
1	2019-03-11 08:41:22	1
2	2019-03-12 11:41:12	ALERT
3	2019-03-12 04:19:48	ALERT
4	2019-03-12 04:19:57	ALERT
5	2019-03-12 04:30:26	ALERT
	2019-	

Fig 5.1 Ambubot sending an alert to web page

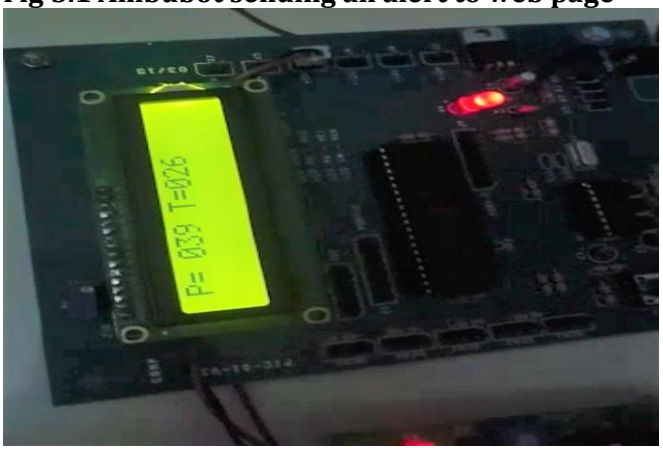


Fig 5.2 the input pulse exceeding the normal pulse

6.CONCLUSION:

Fire and police FRs did not apply AEDs to a significant number of OHCA patients. Use of the transport ambulance defibrillator was the primary reason given for not applying the FR AED. Given low AED application rates by FRs, future studies are needed to determine the characteristics of communities in which equipping FRs with AEDs is the most beneficial deployment strategy, and how to increase AED application by FRs in communities with FR AED programs.

Sudden cardiac death remains a major public health issue. Animal and human data demonstrate that early defibrillation improves survival, and that reductions in time to defibrillation can increase survival following sudden cardiac arrest. However, there are limitations to how quickly the EMSs can respond in many communities, particularly in rural and urban centers. The AED represents a major advance in the effort to achieve early defibrillation and further improve survival following out-of-hospital sudden cardiac arrest. By responding to the challenge to develop an AED that is more accurate, lightweight, affordable, and easy to use, AED manufacturers have helped make public access to defibrillation feasible. With help from the state and federal governments, manufacturers have helped overcome many of the obstacles to AED implementation. Automated external defibrillators are quickly becoming an integral part of the EMS and their presence in the community is increasing at a rapid rate. Additional studies are needed to determine how widespread the deployment of these lifesaving devices should be, provide more data on the cost-effectiveness of PAD, and further define the role of the AED in children and infants.

7.REFERENCES

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