ISSN 2616-5767 Vol.4, Issue 2: 85-88, DOI: 10.25236/AJETS.2021.040214

Design and Research of Smart Alarm Contact Bracelet

Tao Siyu, Wu Xingrui*, Xu Jiaying, Li Liyuan

The Tourism College of Changchun University Changchun, Jilin 130607, China
** Corresponding Author*

Abstract: *With the development of science and technology, people's awareness of health has increased, but in life, people's health is mostly not controlled by themselves. There are many external constraints, such as how to save themselves when people are in danger. This bracelet is for this purpose. Users only need to wear a bracelet and touch the button to connect with emergency contacts and the 110 alarm center, providing users with professional personal security services. Bracelet holders need to apply for the real-name system, which can promptly sense when people encounter difficulties, dial 110, send the location, and record when the enemy can't find it. Incoming mobile phone calls will be sensed and the mute answer button will not be selected. He was found and recorded and sent a text message to the emergency contact. In the event of a non-human hazard, such as a fire or an earthquake, he would promptly notify the relevant departments according to the people's situation.*

Keywords: *bracelet, recording, database, sending SMS*

1. Introduction

Now in many countries, human injuries such as kidnapping, school bullying, and natural disasters such as fires and earthquakes occur. No matter in a certain situation, if there is no communication equipment nearby, the bracelet will work. There are many areas where there is no communication. On the Internet, I can't do anything if I want to dial 110. The dangers are everywhere when I go out. A lot of Didi black car accidents have sounded the alarm for us. We should improve our safety awareness and also pay attention to timely contact. In fact, if you use a mobile phone to contact, there will be sos in the mobile phone. But under normal circumstances, there is no chance to get your own mobile phone. Different bracelets, no one cares too much about a bracelet, it can save lives if necessary

This bracelet is mainly based on the recording module and wireless system positioning structure. Operator users whose mobile phone signal can cover can enjoy the security service of the smart alarm contact bracelet. Because the two definitions of presentation behavior and system system and their theories and applications have promoted the development of large-scale embedded software systems and Internet applications, they have been recognized in the field of computer software internationally. The sensor is innovated on the basis of the communication bracelet. It is connected with sound sensors, recording sensors, and monitoring modules. There is also a wireless communication device for communication in remote areas.

This system has a positioning function and uses database technology. Just press and hold the down button on the side of the watch for about 5 seconds, and "SOS" will appear on the watch screen. At this time, if the smart applet on the phone is bound to the watch. Then the system can record the voice to the voice system and communicate it through the Internet of Things technology after encountering a danger, and record the screen content through the built-in camera of the bracelet and report it to the emergency contact. When the emergency contact does not respond, the system will call for help 110 , Provide positioning, real-time monitoring and recording, wireless communication equipment is small and difficult to be found.

2. The hardware composition of the smart alarm contact bracelet

The smart alarm contact bracelet mainly includes: recording module, monitoring module, positioning module, communication module.

The hardware composition of the smart alarm contact bracelet. As shown in Figure 1 below:

ISSN 2616-5767 Vol.4, Issue 2: 85-88, DOI: 10.25236/AJETS.2021.040214

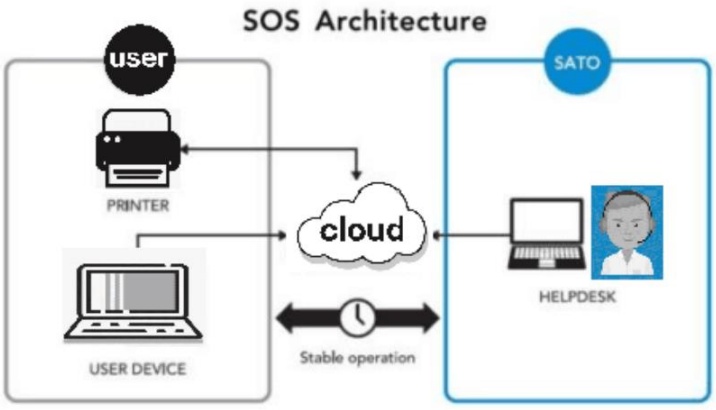

Figure 1 Hardware composition diagram of the smart alarm contact bracelet

2.1 Recording module of intelligent alarm contact system

The recording sensor of the smart alarm contact bracelet is controlled by the mobile phone app to control the input and output, take information and record if necessary, transmit it to the emergency contact through the communication module, and record the recognizable audio in the surrounding environment, so that you can better grasp the vicinity Happening. The process of its operation is to collect audio through the sensor of the recording module, and then compare and transmit the collected audio data.

In order to make the results of embedded audio processing more accurate, we adopt the current situation of wireless communication voice recording management based on the Internet of Things engineering, through the combination of software and hardware, research and design a multi-port wireless sensor communication voice recording module based on the Internet of Things, In order to increase the frequency of recording and listening, the extraction efficiency and accurate comparison of data.

2.2 The communication module of the smart alarm contact bracelet

Intelligent communication module. In this place, you can ask for help from the first contact to the third contact stored in the app by starting the bracelet button sos help system. If there is still no one answering, it can be directly transmitted to the 110 alarm system. Disasters are powerless and can send real-time locations to emergency contacts, such as earthquakes, fires and other natural disasters. Another possibility is that they are in danger when going out. The accident of many black cars has sounded the alarm for us. It is necessary to raise our safety awareness and at the same time. Pay attention to contact in time.

Also in situations other than danger, such as emergencies, physical illnesses are also quickly detected and detected, and no one at home can help. Relevant characteristic parameters are extracted and connected to the Internet or satellite system, and the data is output to the first contact's mobile phone. If the first contact's network is busy, you can directly dial 120 to ask the system for help.

2.3 The positioning module of the smart alarm contact bracelet

The automatic positioning module measures the direction of the same radiation source from two or more detection points. After inputting it to the position information processing display device, it refers to the official app positioning system such as WeChat and Baidu, and sends the current position urgently through the app. The calculated data is sent to the emergency contact.

Using satellite navigation system, the core data receiver is simulated by satellite communication. It is mainly composed of baseband signal processing and navigation calculation. There is no need to worry about areas with no signal. The system adds no signal connection. The user part of the baseband positioning and decoding signal processing mainly includes three-dimensional search, acquisition, tracking, pseudorange calculation, and navigation for GPS visible satellite positioning and decoding signals. Signal processing such as data decoding.

ISSN 2616-5767 Vol.4, Issue 2: 85-88, DOI: 10.25236/AJETS.2021.040214

2.4 The monitoring module of the smart alarm contact bracelet

First, input all the currently collected video signals to the video capture terminal. The video capture terminal uses image compression and integration to convert the video signal into a 25 frame/sec digital image, and forward the compressed audio and video data stream through the Internet system To the emergency contact mobile phone; the emergency contact mobile phone decompresses the received image and sound data from the front-end and performs real-time monitoring through the computer display screen and sound card.

When the bracelet button is touched, the alarm decoder will link the alarm output device and transmit it to the emergency contact's mobile phone. The video server of the monitoring center will immediately send out an audio signal, record the alarm event, and perform alarm operations such as hard disk video recording after receiving the alarm signal.

3. The software composition of the smart alarm contact bracelet

The smart alarm contact bracelet is mainly implemented in the app module to add emergency contacts to the app. It is as simple as scanning the QR code to install the mobile app and automatically connect to the alarm smart terminal. This App can realize functions such as alarm, real-time monitoring, peripheral information control, and wearable device management. And establish a connection and transfer information work.

3.1 Communication module

Transmit to the emergency contact through the communication module, and enter the identifiable audio in the surrounding environment, so that you can better grasp the nearby situation, and can also accurately identify and extract the suspect's audio.

3.2 Recording module

Based on the current situation of wireless communication voice recording management in transportation stations, through the combination of software and hardware, research and design a multi-channel wireless communication voice recording system to improve the efficiency of recording and listening.

3.3 Positioning module

With reference to official app positioning systems such as WeChat and Baidu, the current location is urgently sent through the app. The app calculates the data and sends it to the front-end pre-stored emergency contact, which can be located in a non-network environment.

3.4 Video module

The emergency contact's mobile phone decompresses the image and sound module data from the front end and performs remote monitoring through the app display screen and the sound simulation module, which can quickly identify the appearance of the suspect and monitor the status of the victim in real time.

4. System test of smart alarm contact bracelet

When the smart alarm contact bracelet is running, after the emergency contact is added to the app, normal communication can be performed. The real-time location sent by the victim and the emergency 5-second recording can be successfully received, the video is generated, and the monitoring is performed. The app tests the recording accuracy, its accuracy is above 95%; when the bracelet data reaches the rescue value, the emergency contact will be contacted, the communication module can operate normally, and the corresponding action screen is output through remote video. After many tests, it is found that the success rate is above 95%; finally, we performed audio input and found that voice output can be performed. After many tests, its accuracy rate is above 95%. Under the normal communication module, there is an additional module that can be connected without a network, which

ISSN 2616-5767 Vol.4, Issue 2: 85-88, DOI: 10.25236/AJETS.2021.040214

can be used to communicate information in the no signal area, and it is accurately connected, can send the location, and the test is normal. The power can be powered by solar energy, and the electricity can be stored, and there is electricity. In this case, everything runs normally.

5. Conclusion

With the advent of the Internet era, ordinary people have gradually entered the era of intelligence. Through the development of the times, dangers are everywhere. While people's awareness of security is constantly strengthened, this system has improved those who have relatively weak self-protection capabilities. The safety awareness of groups, such as the elderly and children, is widely used along with various mobile positioning technologies. Nowadays, people's attention and attention are paid to such services for personal emergency calls for portable devices. The design of this article implements the SOS (Send Our Succour) system based on the app platform of the Internet of Things engineering. The main design focus of the system is the content of the distress information signal and the method and way of sending information, and integrate it with the smart phone. The communication functions, real-time positioning, multimedia and Internet functions of the mobile phone can be combined to achieve a more convenient and reliable mobile phone emergency service function. In addition, Bluetooth technology is connected to your smart phone app, and the bracelet collects text messages, incoming calls, and other information at the same time. The material of the bracelet is also waterproof, sweat-proof, and vibration-proof. It can be worn 24 hours. The appearance is simple and beautiful. It is not only a modern high-tech IoT product, but also a decoration and art worth having and wishing to wear. Product.

Acknowledgement

Project Fund:

In 2020, the School of Tourism the Tourism College of Changchun University the school-level project "Smart Alarm Link Bracelet"

2020 Jilin Province University Student Innovation Training Project "Intelligent Alarm Contact Bracelet"

References

[1] Qiu Dezheng(2015).Design and implementation of multi-channel wireless communication voice recording system, Information Science, no.02.
[2] Jin Ying, Liu Hu（2008）. Design of an intelligent control module with caller ID display and DTMF signal sending and receiving functions [J]. Application of Electronic Technology, no.04,pp.132-134.
[3] Li Hui(2015). Design and implementation of an Android-based smart phone help-seeking system [D]. University of Electronic Science and Technology of China.
[4] Fu Guangchun, Zhang Wei, Yu Zetong(2009). Design of a wireless emergency call system [J]. Modern Electronic Technology, vol.32,no.15,pp.131-132+135.
[5] Zhang Jiajin, Chen Lichang, Li Xuefei, Tang Junjun, Yan Shuai(2015). Design of Emergency Calling System for Android Smart Phone[J]. Microcontrollers and Embedded System Applications, vol.15,no.05,pp.69-72.