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A Flexible and Wearable Bracelet Computer for On Body Sensing with RFID Using ARM7

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ABSTRACT

The system is designed to be a Small-size, flexible and programmable and having low cost sensor for the user's . It also supports Range of daughter boards of user's choice, and provides different ways for the boards to be connected to the main processor board. In earlier days when people if any accidents or stamped happens they are unable to contact their family and not able to track their position. To track the person's exact position using of gps and gsm system. Our system helps them, to track their position using gps even the good health of users is also equally important so our system provides facility of health care, in which mainly temperature , pulse rate and motion of user are continuously checked monitored via gsm. An application of the system Which uses the same wireless board as the Bracelet computer for localizing to user's position .Also our system provide RFID reader for the identification purpose which contain the information like name, address etc.

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I. INTRODUCTION

Bracelet computer is designed to be flexible and wearable multi-purpose and it also support sensors like temperature, pulse rate and motion sensor at one time. The system is designed to continuously monitoring and checks the user's health performance. The major principle of this system design for user's sensing is that on-body sensors must be small and light-weight to avoid obstructions to the subjects. The Bracelet computer is a custom-designed, modular wearable platform that allows for different combinations of modules to be used for a wide range of WSN applications. Firstly, the Bracelet computer's design and its features will be presented; secondly, a real time application using the same wireless module of the Bracelet computer for user's health performance monitoring is described: the application uses radio-based localisation which is function of the Bracelet computer to track the position of a user's via GPS system.

II. LITERATURE SYSTEM

Smart Bands

The idea of a smart band, or a computer attached to your arm, is not very new. Some argue that the first wearable technology dates back to the 17th century in China, where a fully functional abacus ring has been found. This calculation tool in the form of a ring was of course not a computer, but it indicates that the concept of useful wearable is quite old. In the mid 20th century there were many examples of wearable devices in science fiction, such as Knight Rider. In the mid 1970s the first digital watches started to appear and with them a new type of watch, the calculator watch, was born. The first calculator watch was introduced by Pulsar and this type of watch was made quite popular in the 1980s with companies such as Casio in the lead. Up until late 1990s watches were being stuffed with technology, such as Seiko's TV watch and the Watch Pad, a Linux smart watch made by IBM and Citizen. But since then the hype for smart watches has died out, much due to technical limitations and how expensive the hardware was smart band comes in picture. Simpler cheaper smart bands became more popular.

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In a survey carried out by the market research group You Gov it was shown that almost 60% above 30 to 60 olds face the health problem and starts improving in smart bands. Now after 40 years of technological improvements the smart band seems to make a comeback and is one of the most hyped electronic devices of our time.

Smart band fields of use

Some research has been done in this field and some of it is presented in this section One area that the smart band might be of good use for is in the health industry. A research conducted by Wile, Ranawaya and Kiss showed that a smart band could be used as a reliable tool for distinguishing the postural re-emergent tremor of Parkinson disease from essential tremor. It made use of the accelerometer to measure different tremors. Another research that used the accelerometer was carried out by Lockman, Fisher and Olson. Their research showed that a smart band could be used as a tool to detect tonic clonic seizures, which might be of great use for caregivers of epilepsy patients, since an unwitnessed seizures could cause injury and even death . Another health related application the smart band has been recorded to be of good use for is for diabetes patients. With a smart band application users were able to update and keep track of various diabetes related data in a much quicker and at-hand way than compared to a smartphone. The time saving aspect of a smart band has been discussed in a previous research. According to a news report a regular person picks up the phone more than 150 times per day, many times just to check notifications, which can be reduced by the use of a smart band. A smart band can also help users notice incoming messages and calls more frequently. According to a research conducted by Nokia up to 30% of men and 40% of women frequently miss their notification.

Lately the smart band has been promoted to be able to carry out many different tasks. Some of these areas include: navigation, weather, time, calendar, communication, games, fitness and notifications. But just because it can do something does not necessarily mean it is suited to do it.

Current platforms

There are many types of smart wearables out on the market today. There are several platforms that focus more on the fitness aspect of wearables. This type of smart watch or smart-band is typically offering functions such as step counters, pulse meters and everyday fitness tracking functions. These usually synchronize the data with an application running on a smartphone. The fitness bands can usually act more or less independent from a smartphone, which cannot really be said about the Pebble, Android Wear and Apple Watch systems.

III. PROPOSED SYSTEM

Body monitoring system:

I) We are using Body temperature, Pulse rate and vibration sensor for monitoring the vital signs of the user.

II) If the user's vital signs are at a dangerously high level, then the μC sends the user's position to the location finder server with the GPS co-ordinates.

III)Thus we can pin point the location of the user on GOOGLE MAPS.

GPS based tracking:

I) Here if the user is any kind of emergency situation, if he is lost or he has a stroke then he can send his precious location via GSM modem.

II) The user's position to the location finder server with the GPS co-ordinates. Thus we can pin point the location of the user on google maps

RFID:
RFID reader is used to identification purpose and also contain the information about the user like name ,address etc.

ARM:
ARM designs microprocessor technology that lies at the heart of advanced digital products, from mobile phones and digital cameras to games consoles and automotive systems, and is leading intellectual property provider of high-performance, low-cost, power-efficient RISC processors, peripherals, and system-on-chip designs through involvement with organizations such as the Virtual Socket Interface Alliance and Virtual Component Exchange. ARM also offers design and software consulting services.

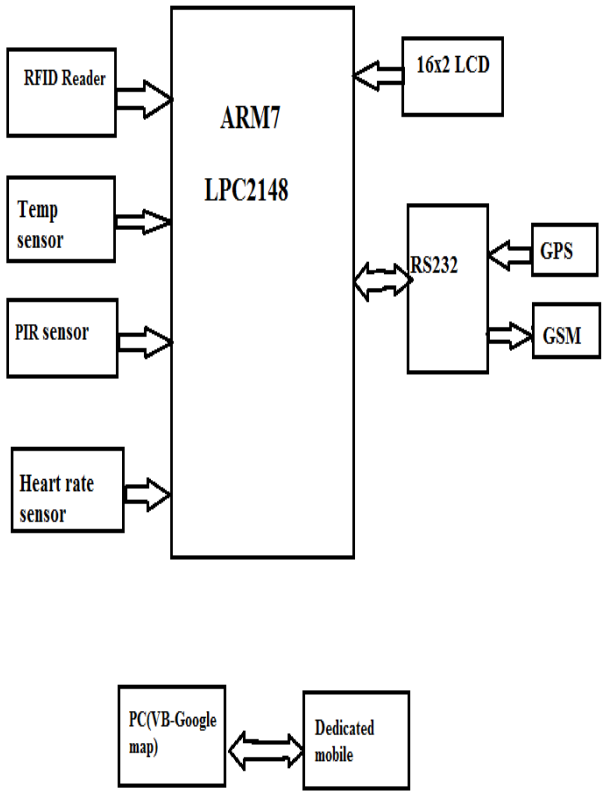

Fig 1. Proposed System

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Application:

- It tracks the location of the person.
- Military purpose.
- It continuously monitor the health performance.

IV. CONCLUSION

We performed the software simulation of our project. "A WEARABLE AND FLEXIBLE BRACELET COMPUTER ON BODY SENSING". We simulated interfacing of controller with the sensors like temperature, pulse sensor and LCD. This simulation done with the proteus software.

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