A Flexible and wearable bracelet computer on body sensing with RFID

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Abstract- *Small-size, light-weight, flexible and programmable, yet low-cost sensor Node is one of the keys to enable Wired Sensor Network (WSN) research and a wide range of user applications. The system is designed to be flexible and wearable that it supports Range of daughter boards of user's choice, and provides different ways for the boards to be connected to the main processor board. Despite a range of features the monetary cost of the system is kept low. An application of the system Which uses the same wireless board as the Bracelet computer for localizing to user's position the applicability of the localization results show that the system achieves an average Positional error of 28.945cm*

Keywords- ARM, GSM module, GPS, RFID, Sensors.

I. INTRODUCTION

The use of pervasive sensing to support sports performance monitoring has been demonstrated in recent years. As identified in, one of the major system design principles for user's sensing is that on-body sensors must be small and light-weight to avoid obstructions to the subjects. On the other hand, as identified in, sensors must support a rich set of functions and – to support large-scale deployment – sensors must be cost-effective (in monetary terms). Given the speed of evolvement, reusability and adaptability are very important when designing both software and hardware platforms of Wireless or wired sensor elements. To address this problem, the Bracelet computer is subsequently designed and developed. 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 wired sensor node (WSN) applications. Firstly, the Bracelet computer's design and its features will be presented; secondly, a real application using the same wireless module of the Bracelet computer for user's health performance monitoring is described: the application uses radio-based localization – which is function of the Bracelet computer to track the position of a user's. It should be noted that however, the Bracelet computer is designed to be flexible and so it is neither restricted for user's health performance monitoring or for localization.

II. LITERATURE SURVEY

The idea of a bracelet 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 mi 20th century there were many examples of wearable devices in science fiction, such as Knight Rider. In the mid1970s 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 computer bracelet comes in picture. Simpler cheaper computer bracelet became more popular. In a survey carried out by the market research group *YouGov* it was shown that almost 60% above 30 to 60 olds face the health problem and starts improving in computer bracelet. Now after 40 years of technological improvements the computer bracelet seems to make a comeback and is one of the most hyped electronic devices of our time

III. PROPOSED SYSTEM

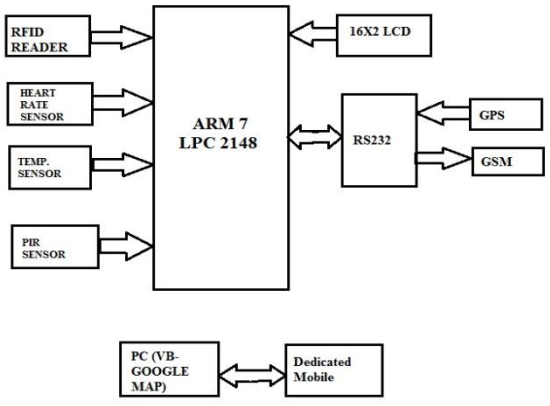

Fig 1. Block Diagram of bracelet computer system

Body Monitoring system:

Here we are using different sensors like Body temperature and Pulse rate for monitoring the vital signs of the user. The user's vital signs checked continuously and µC sends 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.

GPS based tracking:

If the user is any type of emergency condition, if user has a stroke or he is lost then user can easily send his precious position via GSM modem. The user's position to the location finder server with the GPS co-ordinates. Thus by using this GPS coordinates we can pin point the location of the user on Google maps

IV. RESULTS

- Firstly sensors display the parameter on LCD which measure on body like temperature ,heart pulses and motion
- Microcontroller send's the all parameter with GSM module
- GPS is track the user position along with the longitude and latitude.

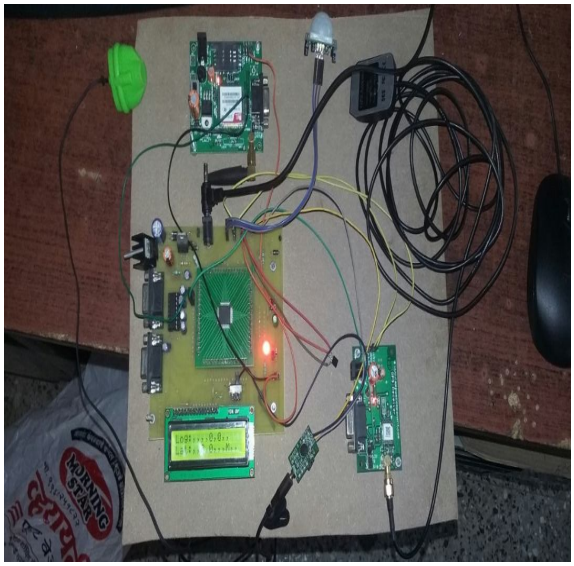

Fig: Experimental setup

V. APPLICATION AND ADVANTAGES

Advantage

- Wearable and flexible.
- Light weight and portable.
- Easy to handle.
- We can pin point the location of the user.

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Application

- Radio-based localization.
- Military purpose
- To check user's health performance.

VI . CONCLUSION

The project work presents the continuous checking of users health by using different sensors like PIR ,heart rate and temperature sensor. These sensors are interface with ARM controller which display these body parameter on LCD screen which is connected to the controller by using GPS and GSM system it track the users location and sends the message to the dedicated mobile user .The system contains the RFID Reader which gives the identification of user in emergency situation using ID Number.

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