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PLAYER'S HEALTH MONITORING AND SUGGESTION THROUGH IOT

T. Nithya Lakshmi* & Dr. G. Nallavan**
* M.Tech Student, Department of Sports Technology, Tamil Nadu Physical Education and Sports University, Chennai, Tamilnadu
** Assistant Professor, Department of Sports Technology, Tamil Nadu Physical Education and Sports University, Chennai, Tamilnadu

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Abstract:

This paper aims at monitoring the players health and informing the players injury condition. These entire detail can be monitored through IOT. The players injury details is uploaded through IOT and we monitor the details. This system is implemented in Paralympic games. As the System contains a variety of sensor types like ECG sensor and EMG sensor. The data transmission protocols will lead to a large amount of heterogeneous data of different sensors current and voltage values and the data is difficult to integrate with applications in upper layer.

A data processing framework is introduced into the system to deal with such problems and data processing framework is introduced into the online monitoring system, which acts as a bridge between physical layer and application layer. In flow we fix smart sensor in the Players body and monitor body condition instantly. The data we get from ECG and EMG sensor are finally confirmed. The condition of the Injury and the details are finally uploaded. The medical suggestion will be sent through IOT

Introduction:

The paper aims at monitoring the player's health and we will inform the players about the injury condition. These entire details monitored through IOT. The player's injury details will be uploaded through IOT and we are going to monitor the details. This system was implemented in Paralympics games. The main application of this project is we can easily detect the player's injury details like depth of injury and damaged part in the player's body that can be monitored by using this system. As the system contains a variety of sensor types like ECG sensor and EMG sensor, the data transmission protocols will lead to a large amount of heterogeneous data of different sensors current and voltage values and the data is difficult to integrate with applications in upper layer.

Data processing framework is introduced into the online monitoring system, which is a bridge between physical layer and application layer. Finally, application in online monitoring system proved the validity of the framework. From this framework we came to know that the requirements of the equipment are used in the technology and we can also monitor system wide changes. In that sensors the main motive is we can easily detect the details about the injury. In ECG(Electro Cardio Graph Sensor) used to detect the Muscles activities, using this activities we will detect the injury condition in the particular part, and we have one more sensor EMG(Electromyography) by using this we will monitor the depth of injury in the persons. Finally this will be uploaded in the cloud; from there we will monitor the sensors in detail. Finally we will give medical advice to the patient.

Methodology:

A methodology is presented for a smooth, orderly implementation of specific e-Health services for monitoring chronic patients outside of the hospital setting. Identified as a stage-gate model for the management of the overall implementation process. The methodology presented formally structured into three steps: a) exploratory examination (pilot project stage); 2) in-depth evaluation (clinical trial stage); and 3) deployment (guided use stage). In the first stage: Monitoring the players health condition, the predominant criteria are the functionality and usability of the technologies involved. In the second stage: Controlling by an associated injury condition and depth of the injury analysis, the predominant criterion is the scientific aspect related to the results obtained in the clinical testing.

The third stage is suggestion of medicine through decisions made by the health administrations as to the implementation of new technologies and the financing thereof. A description is provided as to the requirements of the technological platform designed to serve as the medium for the projects and tests from stage 1 and 2. As an example of what is done in stage 2, a description is given of a trial related to hypertension.

Block Diagram:

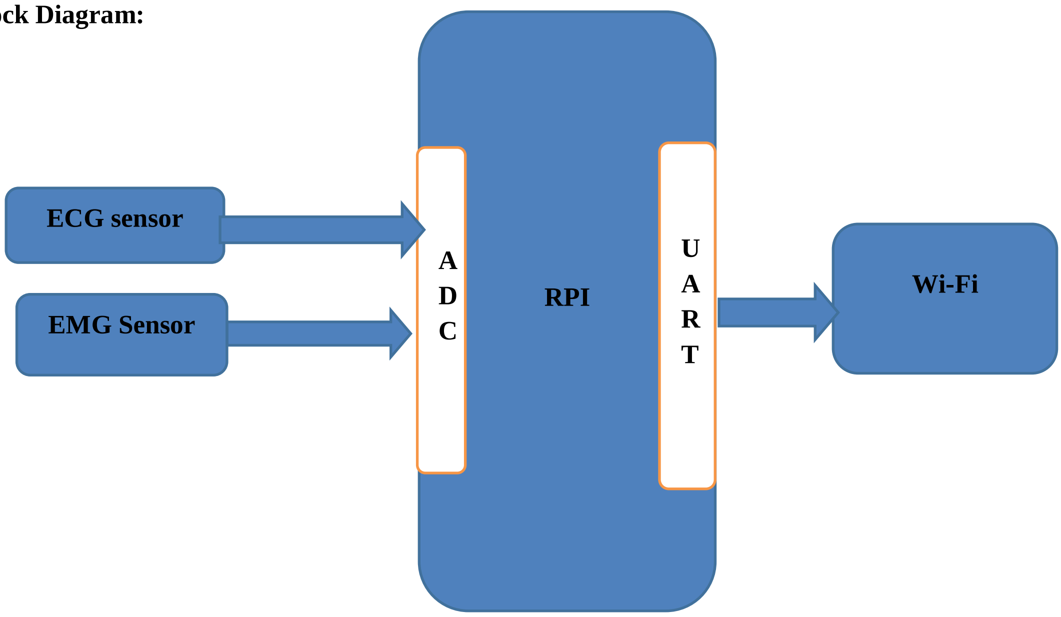
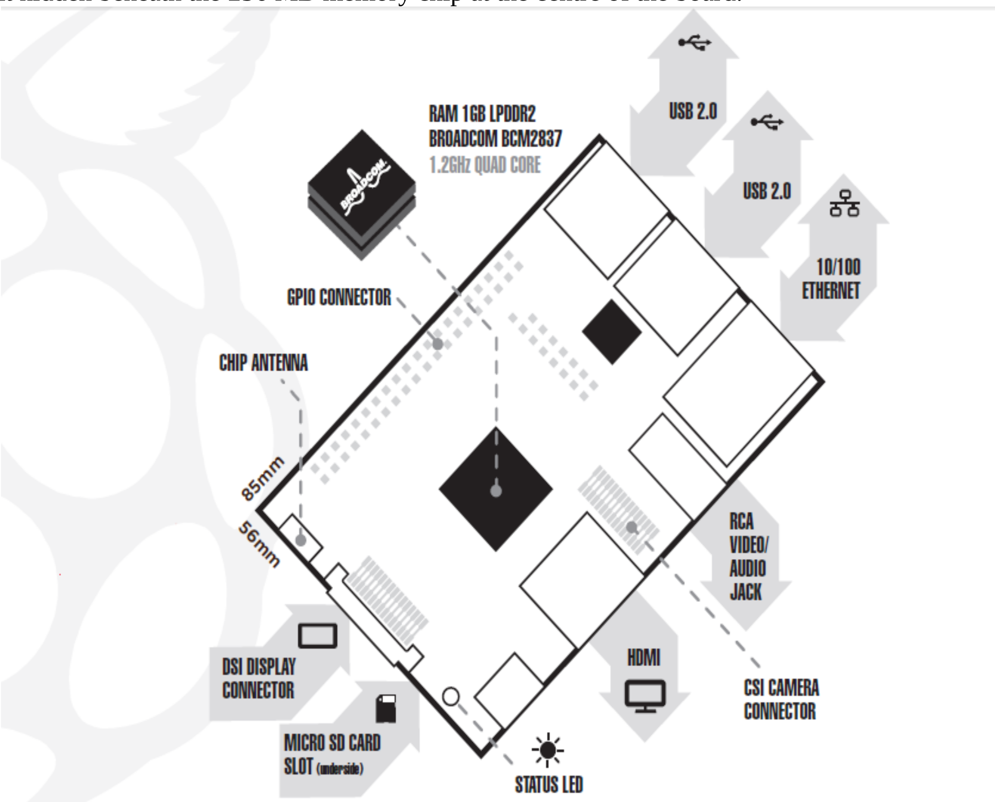


Figure 1: Block Diagram

Design:

The processor at the heart of the Raspberry Pi system is a Broadcom BCM2837 system-on-chip (SoC) multimedia processor. This means that the vast majority of the system's components, including its central and graphics processing units along with the audio and communications hardware, are built onto that single component hidden beneath the 256 MB memory chip at the centre of the board.



It's not just this SoC design that makes the BCM2837 different to the processor found in your desktop or laptop, however. It also uses a different instruction set architecture (ISA), known as ARM. The BCM2837 SoC, located beneath a Hynix memory chip Developed by Acorn Computers back in the late 1980s, the ARM architecture is a relatively uncommon sight in the desktop world. Where it excels, however, is in mobile devices: the phone in your pocket almost certainly has at least one ARM-based processing core hidden away inside. Its combination of a simple reduced instruction set (RISC) architecture and low power draw make it the perfect choice over desktop chips with high power demands and complex instruction set (CISC) architectures. The ARM-based BCM2837 is the secret of how the Raspberry Pi is able to operate on just the 5V 1A power supply provided by the onboard micro-USB port. It's also the reason why you won't find any heat-sinks on the device: the chip's low power draw directly translates into very little waste heat, even during complicated processing tasks. It does, however, mean that the Raspberry Pi isn't compatible with traditional PC software. The majority of software for desktops and laptops is built with the x86 instruction set architecture in mind, as found in processors from the likes of AMD, Intel and VIA. As a result, it won't run on the ARM-based Raspberry Pi.

Flow Analysis:

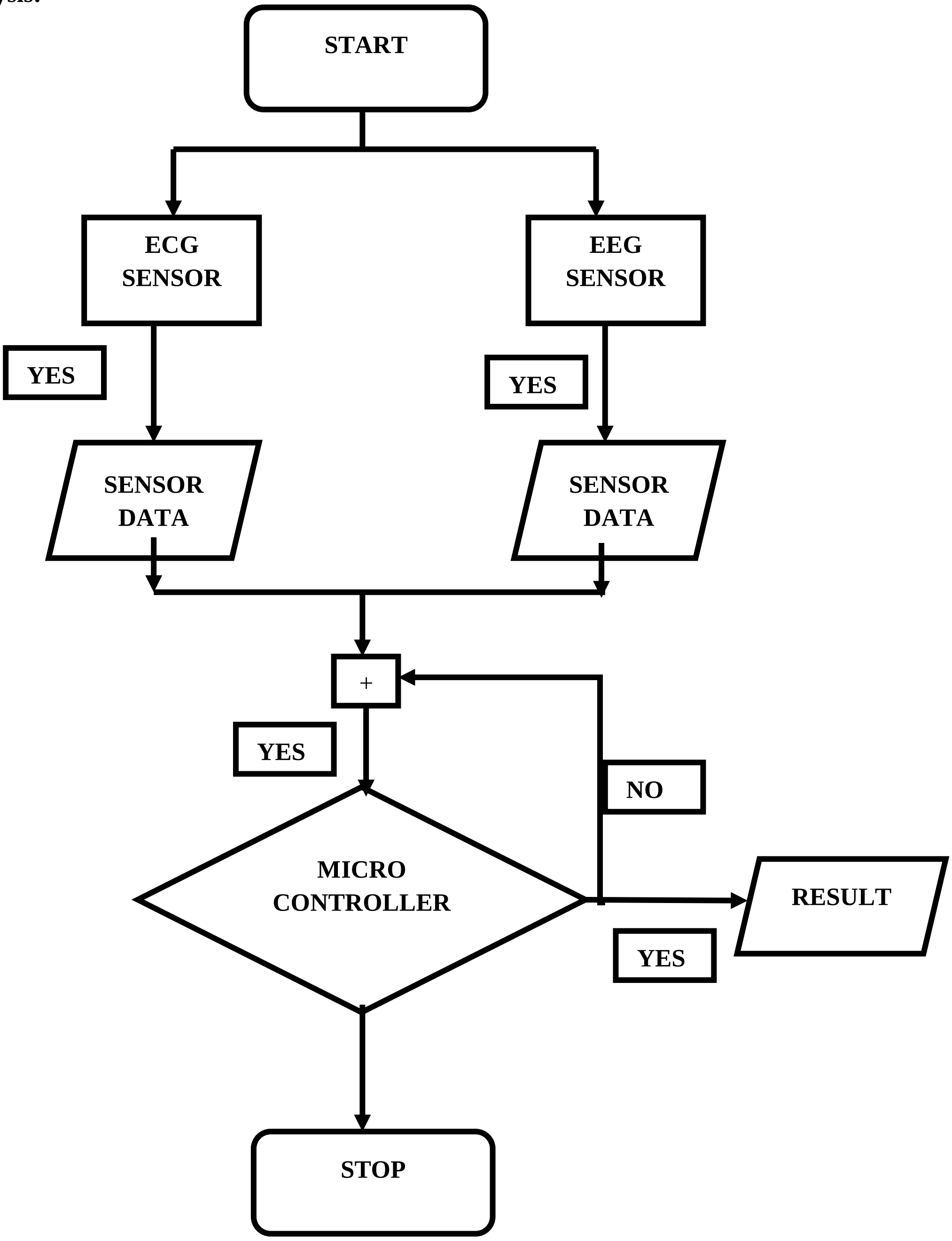


Figure 3: Total Flow Chart

Result and Analysis:

The proposed system has advantages as follows. First, a single EMG channel is only needed. Second, the high performance of the proposed system implies that, it can be used to assist the experts with the aim of improving the sleep stage classification process. Third, it is not computationally demanding. It can be hence used in portable devices to perform online and real-time classification. Fourth, the system performance does not degrade much using the signals recorded from the subjects with suspected sleep-disordered breathing. An important limitation of the proposed system is the sensitivity rate obtained in subject cross-validation for REM which is lower than the ones for other states. Improving the sensitivity rate for REM is left for future work. Due to rapid eye movements during REM, one can investigate the effect of movement-related potential features in this regard

Hardware Results:

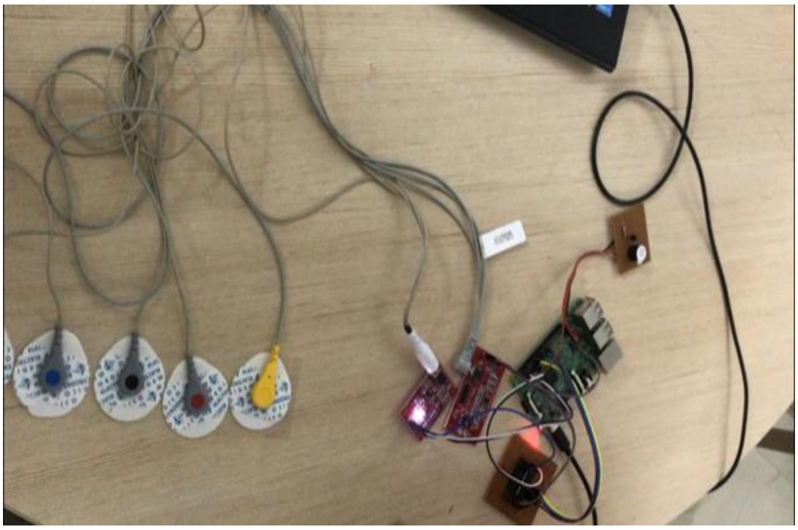
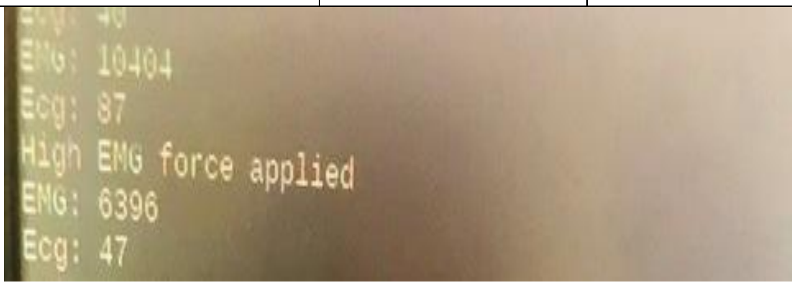


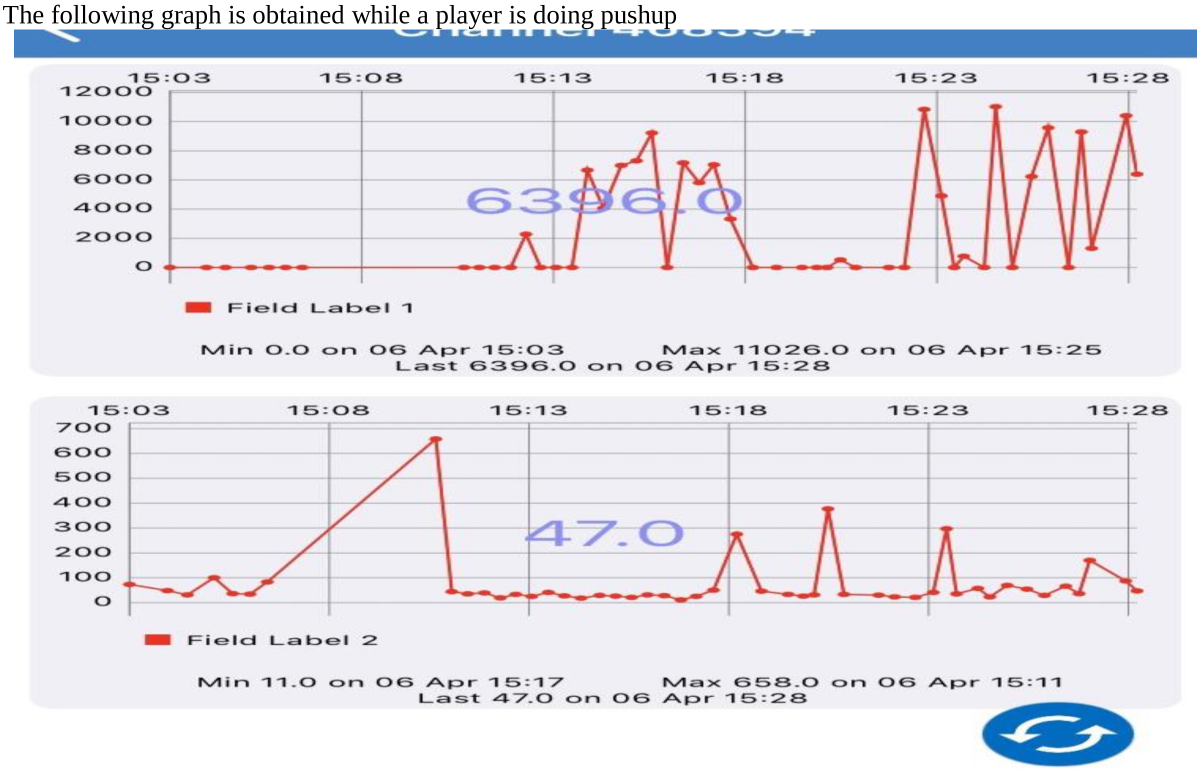
Figure 4: Hardware snap shot

The following are the results obtained by observing a player in different conditions.

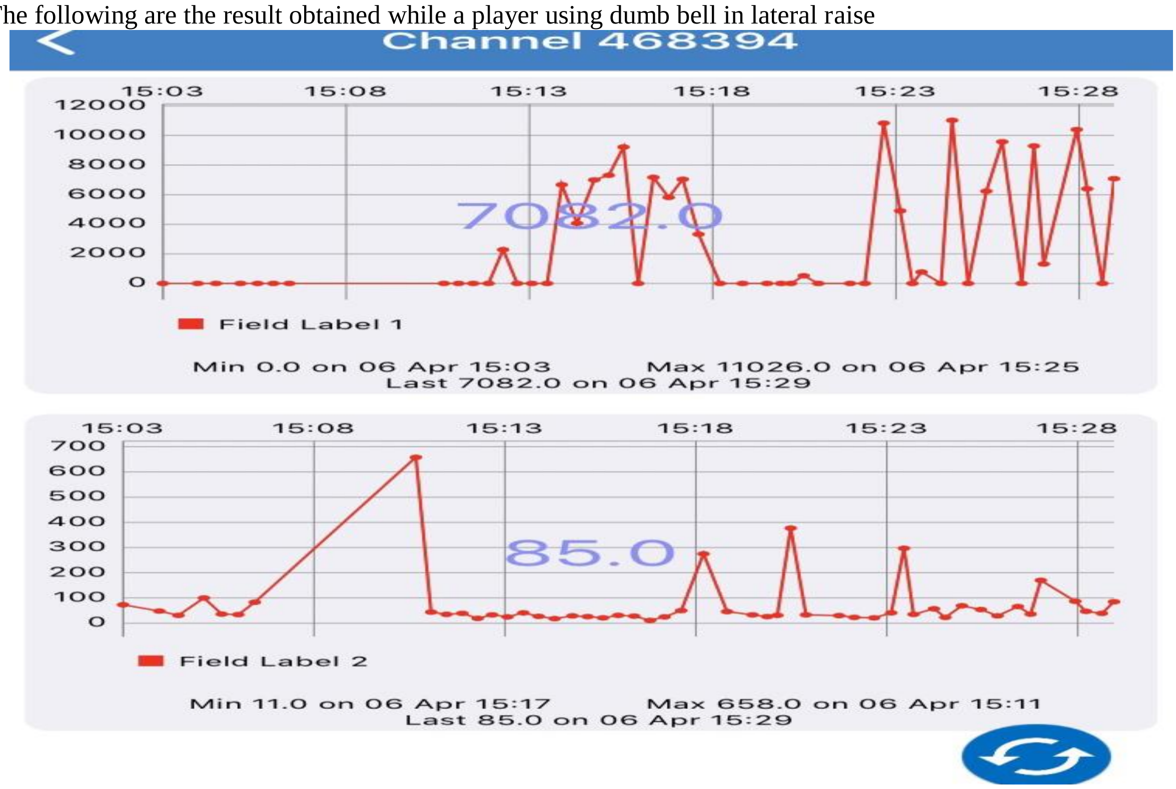
	POSITION	ECG VALUE (bpm)	EMG VALUE
1	Idle	40	5464
2	Dumbell In Lateral Raise	Initial: 39 Final: 87	Initial: 7082 Final: 10404
3	Push Up	Initial: 47 Final: 50	Initial: 6396 Final: 7931



The following graph is obtained while a player is doing pushup



The following are the result obtained while a player using dumb bell in lateral raise



Conclusion:

The health monitoring and SD detection in sport is a good scenario where the proposed system demonstrates its capacity for handling intensive data processing applications. In this paper, the real-time needs for cardiac information of athletes can be solved by applying a real-time heart telemetry system capable of collecting the main cardiac parameters. Then, our approach broadcasting alerts when any of those parameters exhibit different behavior compared to normal cardiac activity in situations that require athletes to perform under physical effort. In those situations where cardiac disorders exist and the cardiologist team has only a few seconds to make the right decisions to provide the best medical care for the athlete, our system provides them with precise information for doing that. This proposal provides two main research contributions: a strategy to optimize the use of biomedical sensors and computing resources to deliver advanced applications to the user, and the design of a distributed computational framework that uses the available computing capabilities in the smart devices for sharing the whole processing of the health monitoring applications.

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