

## WARABLE TECHNOLOGY IN MEDICAL FIELD

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### Abstract

*Wearable technology concern with all types of gadgets that can be wearable on body or can be embedded in cloths these device are very useful in understanding and monitoring our body and if any problem is there in our lifestyle we can correct it by using this technology. These research papers are focused on using wearable technology in medical field and improve the way to treat the patients.*

### Introduction

However, there is little information on the number of adults who track their fitness and health using such devices, or the ways in which adults who do not track their fitness can be convinced to do so. Since wearable fitness devices, such as the Shoes began to appear on the market, the healthcare community has recognized their potential to provide unbiased, accurate insight into patient activity. Patient-generated data can be used to improve preventative care strategies, monitor patient outcomes, and analyze overall trends in patient populations.

### Proposed Model

The wearable technology is creating a future wearable device that promises to live healthier life. Here I proposed a new smart shoes and flexible Mobile Device (FMD).

As FMD and advance smart shoes are connected with the wireless network such as Bluetooth, wifi.

#### A) Advance Smart Shoes

New advance smart shoes include weight detector, GPS, foot massager, distance calculator and smart chip.

**i)Weight detector-** it can calculate the octal weight of the patient.

**ii) distance calculator-** it calculates whole distance patient has covered by running

**iii)GPS-** It is used to detect exact position of patient's .It useful for doctor because this data can be sent to doctor and doctor can analyze this data so he could know exact status of patient's body and treat then properly.

**iv) Smart chip-** Smart Chip stores patient's whole movements. It can help to store patients should cover to reduce his weight it helps to manage and maintain the information about patients weight and provide him the results.

#### V) foot Massager:-

In Smart Shoes a foot massager is used for relaxing the foots and also prevent injuries like pulled ligaments or torn muscles. Advance smart shoes will be mostly useful for obesity patient or athletics person to maintain their body.

#### Flexible Mobile Device(FMD)

FMD is a advance smart phone it is flexible we can fold it and also use like wrist band it can access all the data i.e., sent by the smart shoes and also can be used to visualize this data .A

FMD can include a number of patients requirement.

This sensors monitor physical data massy include followings

-Blood pressure

-Oxygen level

-Body Temperature

-Hydration level

-Pain relief

-Heart rate

-Muscle activity.



**Figure 1**

As above diagram shows the working of wearable technology. An advance smart shoes gathers information about the patient's weight his all movements and how many distance he/she ran, also monitors the reduced weight. As we know smart shoes and FMD are connected with each other via. Wireless network so patient can know about their biomechanical data their actual weight and reduced weight FMD also monitor their physiological data when patient is in running from

Doctor can analyze their whole movement of patient. Then doctor can study daily routine o f patient. Their hurt rate, BP, musical activity, losing weight, oxygen level, temperature etc. It doctor know about patient movement then he will be able to understand exact state of patient body can treat them properly. This is also useful for them to reduce there weight and maintain their body.

#### **Existing Techniques:-**

These device produce data that often enable with analyze can be used by consumer to manage their health and by healthcare organization to improve care and potential reduce cost through system such as remote patient monitoring.

#### **The smart shoes and FMD is**

- Intelligent so the project useful insight.
- Integrates into the consumer's life and into the life cycle of cure.
- interoperable with other device and application.
- Social so insights can be shared based on user preference.
- Outcomes-based for the consumer, health or practitioner or other healthcare patient.

### High hopes for wearable's

-56% believe that the average life expectancy will grow by 10 year because of wearable enabled monitoring of our vital sight.

-46% believe wearable technology will decrease obesity by allows us to monitor our nutrition and exercise.

-42% believe the average persons athletics ability will improve dramatically as we use wearable technology to monitor our nutrition and fitness our sports progress.

(Source :HRI/CIS wearable's consumer survey 2014).

### In FMD an exerter set of physiological sensors may include the following:

-An ECG(electrocardiogram) sensor for monitoring heart activity.

-An EMG (electromyography) sensor for monitoring muscle activity.

-A blood pressure sensor.

-A breathing sensor for monitoring Respiration.

-miscreant sensors used to estimate users activity.

These physiological sensors typically generate analog signals or interfaces to standard wireless n/w platforms that provide computational, storage, and

communication capabilities. Multiple physiological sensors can show a single wireless network node.

The wireless sensor nodes should satisfy the following requirement: minimum height, low-power operation to permit continuous monitoring, seamless integration into a FMD and patient-specific calibration, tunics and customization the wireless network node can be implemented as tiny pities into a shoes the network nodes continuous collect and process information store them locally and send them to the clinical centre.

### Conclusion

This research paper provides description of wearable technology applied in medical field. The field is rapidly advancing and numerous research groups have already demonstrated applications of grad clinical reliance. This is expected to allow clinic eves to eventually benefit from both data gathered in the home and the clinical centre during the performance of activities of daily living and data recorded in the clinical centre under. It will sure the obesity patients or athletic persons are very helpful to using this technology.

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