

ORTHOMOBI

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Abstract— WEARABLE HEALTH MONITORING DEVICES ALLOW FOR MEASURING PHYSIOLOGICAL PARAMETERS WITHOUT RESTRICTING INDIVIDUALS' DAILY ACTIVITIES, PROVIDING INFORMATION THAT IS REFLECTIVE OF AN INDIVIDUAL'S HEALTH AND WELL-BEING. ONE SUCH SYSTEM CAN BE EMBEDDED IN AN INSOLE AND IN THE KNEE, HEAL TO OBTAIN PHYSIOLOGICAL DATA FROM THE PLANTAR ASPECT OF THE FOOT THAT CAN BE ANALYZED TO GAIN INSIGHT INTO AN INDIVIDUAL'S HEALTH. BY DEVELOPING A SYSTEM THAT IS CAPABLE OF MEASURING PARAMETERS SUCH AS PPD, GAIT CHARACTERISTICS, FOOT TEMPERATURE, AND HEART RATE, KNEE POSITION A HOLISTIC UNDERSTANDING OF AN INDIVIDUAL'S HEALTH AND WELL-BEING CAN BE OBTAINED WITHOUT INTERRUPTING DAY-TO-DAY ACTIVITIES, AND ALL THE DATA ARE STORED IN THE CLOUD. THE PROPOSED DEVICE CAN HAVE A MULTITUDE OF APPLICATIONS, SUCH AS PATHOLOGY DETECTION, TRACKING MEDICAL CONDITIONS, AND ANALYZING GAIT CHARACTERISTICS. THE MACHINE LEARNING – ARTIFICIAL NEURAL NETWORK ALGORITHM IS USED TO PROCESS THE DATA FOR FURTHER ANALYSIS AND DATA ARE STORED IN THE CLOUD.

Keywords—measuring, physiological paramters , physiological data, plantar, ppd, gait charcateristics, foot temperature, heart rate, knee position,cloud, pathology deduction, tracking ,medical condition.

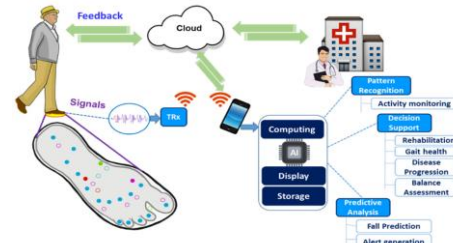
Introduction (Heading 1)

Wearable health monitoring devices allow for measuring physiological parameters without restricting individuals' daily activities, providing information that is reflective of an individual's health and well-being. One such system can be embedded in an insole and the knee, heal to obtain physiological data from the plantar aspect of the foot that can be analyzed to gain insight into an individual's health. By developing a system that is capable of measuring parameters such as PPD, gait characteristics, foot temperature, and heart rate, knee position a holistic understanding of an individual's health and well-being can be obtained without interrupting day-to-day activities, and all the data are stored in the cloud. The proposed device can have a multitude of applications, such as pathology detection, tracking medical conditions, and analyzing gait characteristics. The machine learning – artificial neural network algorithm is used to process the data for further analysis and data are stored in the cloud. By using Unity software the schematic of the patient was monitored in real-time.

I. IDEA

A. PROPOSED IDEA

The concept is to create a product called orthomobi that gathers some basic data from the leg, such as ppd, gait characteristics, foot temperature, heart rate, and knee, and stores the value in the database. The stored data will be updated in web applications, where users can also view real-time walking animations. It will be helpful for those with orthotics who live in distant areas and are unable to regularly visit a hospital for check-ups. They can put on this product and walk for a short while so that Orthomobi can get some basic leg data, which will then be stored in the cloud. The doctor can observe the real-time walking animation of the patient while using that web application.

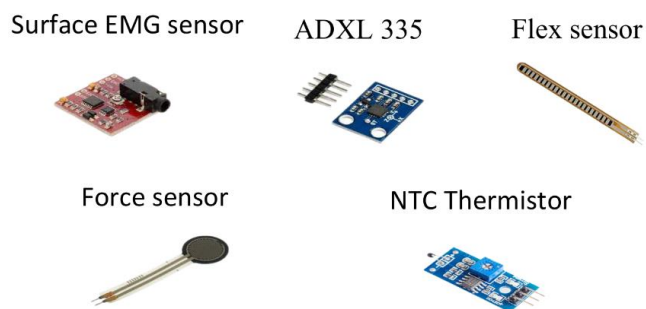


B. TECHNICAL DESIGN

In the orthomobi product, the insole has a force sensor built in it, the knee has a flex sensor, there is an ntc thermistor below the insole, and the side has an adxl 335.

C.HARDWARE SENSOR

The insole's force sensor measures the force that the feet are exerting, together with an NTC thermistor that measures body temperature and an adxl 335 that measures dynamic acceleration brought on by movement, shock, vibration, and position. A diagnostic test called electromyography (EMG) is used to evaluate the condition of the muscles and the nerve cells that govern them (motor neurons). The results of an EMG can identify difficulties with nerve-to-muscle signal transmission, muscle dysfunction, or both.



D. SOFTWARE

React JS, PHP, and mysql are used to create the front end and back end of the web apps, respectively. Units

E. SYSTEM

When an orthotic patient uses this kit and walks for a while, sensors in the orthomobi collect data from the leg and store it in a database. When a doctor accesses that web application, he can view the data there and analyse it to determine the best course of treatment. The doctor can also see the web application's real-time walking animation.

F. CONCLUSION

Diabetic patients, orthotic patients, and people who have had limb injuries and have plates in their legs are among our target clients. It will be highly beneficial to orthotic patients who live in rural locations and are unable to travel to hospitals for routine check-ups. These kits can also be utilised in hospitals in remote locations without specialised equipment. It is incredibly adaptable, simple to use, and reasonably priced.

G. REFERENCE

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