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A REVIEW ON INSTANT SEATING WITH EXOSKELETON CHAIR

Ankit Tripathi[1], Sandeep Yadav[2], Sagar Prajapati[2],

Sanjay Vishwakarma[2], Ravi Kumar Sharma[2].

Asst. Professor, Dept. of ME, Buddha Institute of Technology, Gorakhpur, Uttar Pradesh, India[1].

B. Tech Student, Dept. of ME, Buddha Institute of Technology, Gorakhpur, Uttar Pradesh, India[2].

ABSTRACT

Necessity is the mother of invention. There are lot of workers that work for just one company for 10-12 hours a day which may result in several physical ailments and may result in prolong physical problems. exoskeleton chair is that could be worn by production-line workers. unhealthy postures also lead to fatigue. whether the difficulty is pain or fatigue or both, the worker's issue becomes a productivity issue, which is not beneficial to employers. it is true. it is a hydraulic-based exoskeleton chair. It is very lightweight. So, worker easy to be worn and for long hour can wear easily. It can adjust according to our size, increase hight and easy decrease, it is made a materials like plastic, low carbon steel, carbon fibers etc.

KEYWORDS- Invention, Unhealthy, Productivity, Exoskeleton.

INTRODUCTION- Exoskeletons are important part of human race future. The exoskeleton is a wearable device that works in tandem with the user. The exoskeleton is connected to the human body and increases the power of muscles or relaxes the muscles. If workers used the exoskeleton chair, they would be anytime you can sit anywhere. It is very helpful for workers. I consider an employee to work for a long-time during production. Workers work at comfort zones such as better lighting, ventilation, air-conditioning, and seating with proper working conditions. If the worker does not comfort after some such activities. Then the fatigue increases subsequently decreases productivity[8]. The machines are work a long hour without rest, but humans need comfort. It can be customized to fit all sizes and outfits. In any Industry, space management is an important factor. Unnecessary chairs are avoided by using exoskeleton chair.

FUTURE SCOPE- The basic operation of this machine to reduce fatigue by sustaining the weight of the wearer in a similar fashion as that by a regular chair as your leg weakness progresses due to increasing in your age, your health care team may recommend equipment known as ambulation aids and bracing to help you with walking. Other devices can help give you needed support as the muscles in your neck and arms weaken. There may be a use of such exoskeletons which can give more effect than braces and ambulation aids. The specific aid or device that's best for you depends on the extent of the weakness and your willingness to use such a device. Using such instruments for walking climbing, doing work is safe and you are confident that you won't fall. For some, this means having an attendant or using an

assistive device when walking short distances. Such instruments are going to bring more flexibility, mobility and most importantly the confidence Apart from in medical therapy and military sector, active or hoses or exoskeletons offer other applications, for example as a power booster during assembly work in production. They act here as a strength support device to prevent signs of fatigue that occur especially when performing repetitive actions[1].

LITERATURE REVIEW-

Prof. M. S. Agarwal, Kamble Swanand, Jadhav Abhijit, Kasar Mahesh say that the main objective of our project is to enable the worker to have the ability to move around with absolute ease, with the use of a lower body exoskeleton. chair less chair. To develop a portable device capable of providing ankle joint mechanical assistance during walking without using external power from on board actuators. The device we set out to build should be light weight, portable and user friendly. The device should not hamper the normal gait cycle of an individual but should only enhance it [1]. **Suhail.P.S., Akhil.R, Muhammed Aashiq. A, Mohammed Afsal M. A, Premkrishnan P**, say that Workers in workshops and industries need to undergo several sitting and standing postures for long hours depending on their workload. We came across a worker in a local manufacturing industry. He mentioned that he suffers from severe muscle pain every day after his work. So, as a remedy to reduce muscle stress and to work freely, providing a support below the hip was a solution. Finally, we heard about an exoskeleton support that can be provided to the body as a support while doing work [2]. **Cyril Varghese, Vedaksha Joshi, Vinayak Waghmare, Ajal Nair, Albey David** say that the objective of our project is to enable the worker to have the ability to move around with absolute ease, with the use of a chair less chair [3]. **Chinmay Dhanavade, Indraneel Dalvi, Romesh Gupta, Rashmin Barge**. Say that the present case study or project aims to design and develop a lower body exoskeleton. Usually in production line, the workers are standing while doing their work. This causes them a several fatigues on their back. So, our group has design and developed a chair-less chair which the workers can sit freely whenever they feel tired and still can do their work while sitting [4]. **Sathishranganathan C, Santhosh Kumar G, Prakash P S, Prabhakaran J G,** say that Excessive sitting is also dangerous as it badly affects the body's metabolic rate, leading to the risk of disease such as diabetes, cancer, depression, high blood pressure, etc. Standing for some time is good for health. In workstations, the first concern is to enhance productivity but very few concerns are given to the effect of work fatigue on the worker's body. Till now in the present era of fast-growing technology, workstations don't have a device that could provide comfort to the workers [5]. **Adinda Hadirah Mohd Zin, Shamsul Anuar Shamsudin, Mohd Nizam Sudin, Mohd Nazim Abdul Rahman, Zairulazha Zainal** say that A wearable-chair or chairless chair is one of the useful inventions in recent design history. However, there are not many wearable-chair designs available in current market. The companies involved in the invention and development of such a device are mostly from Switzerland, Japan, and Korea [6]. **Chandan patil, Saurabh Shirsath, Dixit Pawar, Achyut Dhokrat** say that It's an innovative and forward-thinking concept the ability to sit anywhere and every-where with the aid of a chairless chair. The concept was first conceived two years ago by Keith Gunura, co-founder and CEO of noonee, and since then the company has developed its Chairless Chair and entered talks with a number of leading manufacturers. Designed for static and dynamic

industrial market applications, the Chairless Chair aims to increase user's health, comfort, and productivity [7].

ADVANTAGES -

- Allows worker to work in a comfortable position.
- Eco-friendly, doesn't consumes any power.
- Light in Weight, Easy to Carry.
- Decreases stress on legs and back.
- Flexible and easy to Use.
- Instant Seating - Adaptable to Most Working Conditions.

APPLICATIONS-

- Industrial Field.
- Home needs & Daily Activities.
- Army, Defence& Military.
- Trekking, Camps, Outdoor & other Activities.
- Medical field.

CONCLUSIONS-

The exoskeleton chair is successfully fabricated. On its test it uses to successfully bear the load up to 95 KG. Since it does not require any power to run, it is affordable, and maintenance frees and does not require any moving parts except pistons. Its low weight makes it suitable for sitting. It is a portable device can be used for extensive applications. It can be customized to fit all sizes and outfits. The Exoskeleton Based Hydraulic Support was successfully fabricated, and it was found to be suitably safe under Fluctuating Load during walking as well as under Dead Load when the user sits/rests on it.

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