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A Review: Fabrication of Multipurpose Chair with Aids of Joystick

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Abstract: ***There are different chairs and ladders available in market for the utility purpose but we are identify that there is need to create such a multipurpose chair that can be used for various purposes, hence supervisor gives a task and a title for this project. To design and fabricate this ladder cum chair with aids of joystick. it must compare with the other product that available in market. It will perform the work of ladder, study table, writing work, safety buzzer as usual joystick to move from person one place to another place. Information and idea to design and fabricate a multi-purpose operation can be created. Multipurpose chair easier for individuals with disabilities and elders persons. This type of multipurpose chair can be used in library and home.***
Keywords*:* ***Joystick, battery, study table, wheels, emergency buzzer, relay.***

I. INTRODUCTION

This multipurpose chair has been referred as library chair, ladder chair convertible chair, folding step chair as use of study table, writing and reading books on die. Whatever the name, the purpose of the chair was the same .to convert a chair quickly into a step ladder. It is fantastically useful furniture to have in any place let alone a small place. Although it looks complicated it is basically very simple, popular mechanics have an excellent tutorial for those who have brave enough to try out curve. A multipurpose chair use a joystick casing for transporting elder person and handicap person for using a library and home. Which is use as water tank behind the joystick use a when suddenly library is fired just of safety to prevent of going to outside the library elder person and handicap person.

Multipurpose chairs can be made from wood. In some cases, multiple materials are used to construct a chair. Chairs may have hard surfaces of wood hard surfaces may be covered with upholstery or padding. The design may be made of porous materials, or be drilled with holes for decoration; a low back or gaps can provide ventilation. Chairs can also be made from more creative materials, such as recycled materials like cutlery and wooden play bricks, pencils, plumbing tubes, mechanism, table top. Joystick casing is made up by mild steel which is controlling of chair as per given direction. Behind the joystick are attach to water tank system for using handicap person for emergency. As usually use of multipurpose chair kids for studies books.

II. LETRETURE REVIEW

A. Historical background

The chair is of extreme antiquity and simplicity, although for many centuries and indeed for thousands of years it was an article of state and dignity rather than an article of ordinary use. The chair is still extensively used as the emblem of authority in the British House of Commons and in public meetings. It was not, in fact, until the 16th century that it became common anywhere. The chest, the bench and the stool were until then the ordinary seats used in everyday living, and the number of chairs which have survived from an earlier date is exceedingly limited; most of such examples are of ecclesiastical origin. Our knowledge of the chairs of remote antiquity is derived almost entirely from monuments, sculpture and paintings[10].

Joysticks are often used to control video games, and usually have one or more push-buttons whose state can also be read by the computer. A popular variation of the joystick used on modern video game consoles is the analog stick. Joysticks are also used for controlling machines such as cranes, trucks, underwater unmanned vehicles, wheelchairs, surveillance cameras, and zero turning radius lawn mowers. Miniature finger-operated joysticks have been adopted as input devices for smaller electronic equipment such as mobile phones[1].

III. LITERATURE SURVEY

A. Brad E. Dicianno BE, Spaeth DM, Cooper RA, PhD : Recent advancements in control interface technology have made the use of end devices such as power wheelchairs easier for individuals with disabilities, especially those with movement disorders. In this article, we discuss the current state of control interface technology and the devices available clinically for power wheelchair

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control. We also discuss our research on novel hardware and software approaches that are revolutionizing joystick interface technology and that allow more customizability for individual users with special needs and abilities.[1]

B. Fehr L, Langbein W, Skaar S. : The extreme difficulty with which persons with severe disabilities have been taught to maneuver a power wheelchair has been described in case studies, and anecdotal evidence suggests the existence of a patient population for whom mobility is severely limited if not impossible given currently available power wheelchair control interfaces. Since our review of the literature provided little evidence either in support or refutation of the adequacy of existing power wheelchair control interfaces, we surveyed 200 practicing clinicians, asking them to provide information about their patients and to give their impressions of the potential usefulness of a new power wheelchair navigation technology.[2]

C. Jones DK, Albright S, Cooper RA, PhD : People with disabilities such as multiple sclerosis and Parkinson's disease have difficulty operating conventional movement-sensing joysticks (MSJs) because of varying levels of tremor. We developed an isometric joystick (IJ) that has performed as well as a conventional MSJ when used by persons with upper-limb impairments in real and virtual wheelchair driving tasks. The Weighted-Frequency Fourier Linear Combiner (WFLC) filter has been used to cancel tremor effectively in microsurgery. In this study, we compared an MSJ, IJ, and IJ with the WFLC filter in individuals performing a virtual driving task. Although the WFLC filter did not improve driving performance in this study, the IJ without a filter yielded better results than the conventional MSJ and thus may be a potential alternative to the MSJ in minimizing the effects of tremor.[4]

D. Mohan kumar R. and et al. :Found design to multipurpose chair for physically challenged and elder person. The design of wheel chair started by means of literature review to know its evaluation from earlier to the present generation.[5]

E. Pellegrini N, Guillon B, Prigent H, et al. :The extended survival of patients with Duchenne muscular dystrophy (DMD) achieved by the introduction of mechanical ventilation is raising new quality-of-life issues. We evaluated passive range of wrist extension, key pinch strength, and power wheelchair driving in 84 patients. Eighteen restricted drivers were reassessed after having swapped a conventional joystick for another control system (mini-joystick, isometric mini-joystick, finger joystick, or pad) and having moved the position of the tested control system so that the patient could use it with different fingers, his chin or his mouth. All of them regained the ability to drive unrestricted. Adults with DMD gradually lose their ability to drive with a conventional joystick but can regain unrestricted driving with alternative control systems.[6]

F. Rao RS, Seliktar R, Rahman T, et al. : Approximately 40% of Americans with disabilities cannot operate wheeled mobility devices and computers adequately due to diminished upper-limb motor control, sensory limitations, and cognitive impairments. We developed tuning software that can customize control interfaces for individuals with upper limb impairments. This study compared differences in each parameter among different diagnostic groups.[7]

G. Riley P, Rosen M. :disabled subjects were tested in two dimensional tracking tasks. The subjects had action tremor due to various etiologies. Both continuous and discrete targets were used. Displacement sensing and force sensing joysticks were compared. The effect off ring of the control signal was evaluated. Position and velocity control were compared. While individuals were found to benefit from various combinations of control setups, no single control modification or combination of modifications was beneficial to all. It remains necessary to adapt manual control interfaces to the needs of the individual disabled person. Most customizing can be implemented with software.[8]

H. S.M. Sapuan and et al. :fabrication of a multipurpose table using banana trunk fiber woven fabric-reinforced composite material The aesthetic value coupled with strength and mechanical properties make banana trunk fiber woven fabric-reinforced composites a suitable material for furniture making. Design and fabrication details using hand lay up process are described.[9]

IV. WORKING OF THE PROJECT



Fig.3: multipurpose chair with joystick

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Length(mm)	711mm
Width(mm)	533mm
Height(mm)	1160mm
Power Transmission	Warm gear motor
Weight (kg)	22 kg
Joystick	Handmade
Loading capacity(kg)	80 kg
No. of Wheels	4

Table: Details of Project

This multipurpose chair has been referred as library chair, ladder chair convertible chair, folding step chair as use of study table, writing and reading books on dies. Whatever the name, the purpose of the chair was the same .to convert a chair quickly into a step ladder. It is fantastically useful furniture to have in any place let alone a small place. Although it looks complicated it is basically very simple, popular mechanics have an excellent tutorial for those who have brave enough to try out curve.

A multipurpose chair use a joystick casing for transporting elder person and handicap person for using a library and home. which is use as water tank behind the joystick use a when suddenly library is fired just of safety to prevent of going to outside the library elder person and handicap person. Joystick is controlling device which is operated to hand made give the direction for joystick easy to transport for one place to the another place.

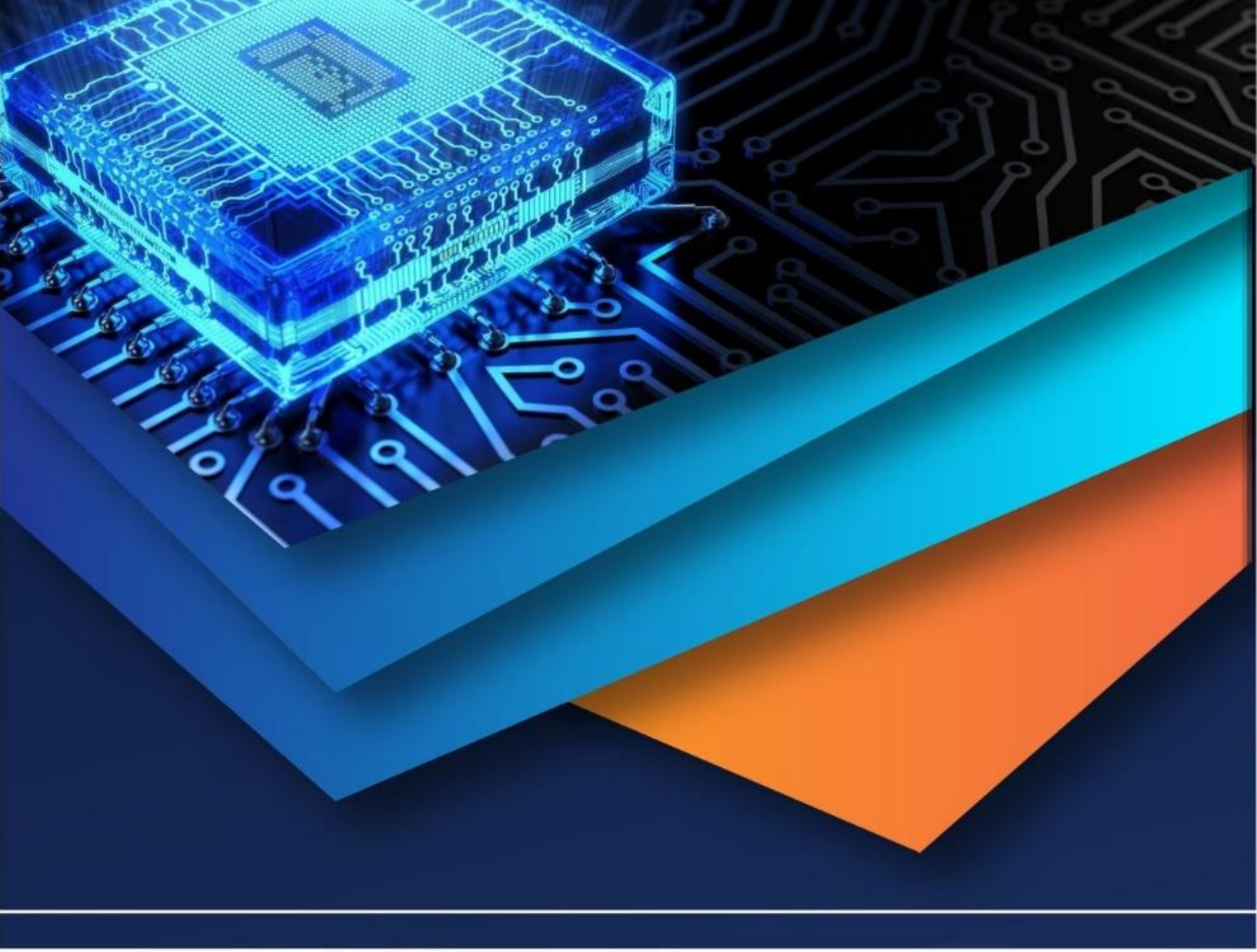
V. CONCLUSION

The concept of multi-purpose convertible chair with a motivation of having space and prevent exertion of person who seat on that multi-purpose chair as well as by making sure that the person does not get injured. The mechanism of seated person while developing the conceptual model of multi-purpose chair. This chair cum ladder conversion feature of this device makes person transfer easier. his multi-purpose chair is light in weight and minimum cost in that order. Costs are to be determined using nominal retail prices. Thus the it is reduces the time for make a operation of climbing as well as seating. Many features are associated that chair and it not very expensive.

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