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Smart Stretcher

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Abstract: ***In ancient times patients' mobility was considered as a means of challenge. The first patients were taken to the wooden stretcher, which are made of leather fabrics. Now the wheels also include the I stretcher so patients who pull it need less effort. But still we are not even able to trace the mobility of patients. We need to use our knowledge more efficiently to deal with that experiment.***

Various types of smart stretchers have been developed in the past, but the new generation of smart stretcher is being developed and used, in which IOT is used and therefore leaving a little tampering about the user controlling the smart stretcher. The purpose of the project is to create a uniform stretcher that has a kind of intelligence and therefore helps the user on its movement.

Keywords: Latest inventions in wheelchair and stretcher, Mobility aid device, Convertible type, Safety.

I. INTRODUCTION

Smart Stretcher is machine controlled This reduces the user's human effort and force to drive the wheels for Stretcher. The Stretcher is also provided with camera system which reduces the chance of collision while on the journey. Smart Stretcher has gained a lot of interests in the recents. This stretcher was used to carry a seriously ill or injured victim. An injured or ill person who is placed on the stretcher and that can be controlled by the controller room with the help of IOT which is interfaced with motors through microcontroller. The construction of smart stretcher is very easy to use. We have used simple mechanism This project is a result of a design and development of a multi-functional stretcher that will perform all necessary functions. Smart Stretcher is made so that it can be maintained and operated easily by either the patient or the operator. The motor drive and the control system of the prototype intelligent stretcher has been presented. The proposed voice% mobile touchscreen operated smartphones The technology can also improve safety for users who use the general joystick-controlled power-driven stretcher, by preventing collisions with walls, fixed objects, furniture and other people. In our analysis, we came to the and conclusion The smart stretcher which can be used through controller room.

II. COMPONENT USED

The major components that will require to complete the project for SMART STRETCHER security system are as follows-

A. Software Requirements

*1)*C Programming Language

*2)*And the required Language

a) Arduino Uno: Arduino is a microcontroller board based on Uno ATmega328. It has 14 virtual input and output pins (6 of which may be used as PWM output), 6 analog inputs, sixteen MHz ceramic regulators, a USB meeting, a electricity jack, an ICSP header and a reset button. It entails the entirety needed to provision microcontrollers, just join it to a laptop with a USB cable or energy it with an AC-to-DC adapter or battery.

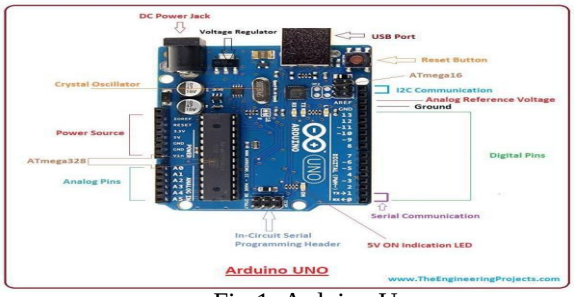

Fig.1. Arduino Uno

b) *Gear Motor:* Gear Motor is a standard sort of motor which is designed to produce high torque whilst maintaining low horsepower or low speed motor output. Gear automobiles may be searched in many one-of-a-kind packages, and are apparently used in many gadgets in your own home.

Fig.2. Gear Motor

c) *Joystick:* The joystick, which got its name from a manipulate stick used by a pilot and to manipulate the crane and lift of an aircraft, is a hand-retaining lever that pivots on one end and its coordinate pc Transmits.

Fig.3. Joystick

d) *Battery:* Electric battery is a device wherein one or more electrical cells are protected, external connections provide electric device. When a battery is imparting electric electricity, its effective terminal cathode and its negative terminal anode. Terminal is the supply of electrons, which will move from outer electric circuit to positive terminal. When the battery is attached to the external electrical load, a radox reaction converts high-energy reactants into low-energy products, and the free-energy difference is distributed to the external circuit as an electrical energy.

e) *Camera:* A static camera, which captures a photo at a time, film digital camera takes a sequence of pix; Each photograph establishes a "frame". A digicam has a lens that focuses mild from the scene, and a digital camera body that holds the photo seize tool. Camera is used to see the path of smart stretcher. This camera is fitted on the front of smart stretcher.

Fig.4. Camera

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III. WORKING

Power supply is required to run electrical equipment. Since the smart stretcher is not a simple stretcher, so there are some electrical appliances connected in it too.

Therefore, it requires power supply to operate. A supply is provided to the Smart Stretcher with the help of a battery. It is attached to the battery voltage regulator. Basically the voltage regulator is a series of three terminals positive regulators, which are available in the package and with many fixed output voltages.

The fixed output voltage that we get from voltage regulated supplies is given to the input of Arduino kit, which requires 3.3 to 5.0 volts. Regulated power supply (RPS), which is the combination of battery and voltage regulator, is given to the input of Arduino kit. In order to move the smart stretcher forward and backward, the controller is given input through the motor drive through the IOT, through which the motor is operated inside it.

To see the way of smart stretcher, the camera system is also placed in front of the smart stretcher Turning the stretcher into a wheelchair, which starts the operation by pressing the push button. When the button is pressed, the motor rotates in the direction of clockwise direction.

The speed at which the change should occur should be 5 to 500 rpm. Therefore output RPM is within the given limitations. Stoppers are provided so that back rest does not go beyond the stretch position of 0 to 180 degrees. As long as push button is pressed, the change continues. When the push button is released, it gets locked in that position. According to the patient's comfort, different positions can be obtained between the changes.

IV. CONCEPT CREATION

Various ideas have been used to visualize the mapping technique. So this classification considered all aspects of the design concept.

A. Concept I

This concept is the principle criterion, which is considered as a convertible wheelchair and stretcher. So to trade the wheelchair into a stretcher, you want to feature a few type of mechanism. In the rear part of the wheelchair, a sliding tubular...Frame is connected in this idea.

A manage is located within the returned relaxation in order that the stretcher can easily be interested in the consumer. Therefore, a proper stability in the again facet ought to be maintained. To get the right stability, a caster wheel is given guide. A pair of massive wheels is furnished inside the center of the wheelchair, to get more energy. The provision of oxygen cylinder is some other call for that has been visible during the user look at and the drip holder area has been provided. The hand rest is designed in one of these manner that it may be rotated and a removable type in order that it really works as a support aspect to switch the patent.

Fig.5. Concept I

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B. Concept II

This Concept isn't like a Concept I. Back Rest is offering an adjustable handle with a cozy holding position. The length can be maintained by using adjusting the knob and may be adjusted. Frame design is designed in any such manner that wheelchair is given the

Fig.6.Concept II

C. Concept III

This idea is driven by means of hydraulic system, in order that the peak can be adjusted in line with the person's comfort. The user does no longer have any difficulty whilst managing the product in this type of manner, due to the fact it's miles designed to manipulate it. Under the seat, a easy design of the oxygen cylinder holder has been supplied in order that it is able to help in adjusting the stretch with the help detail to alter the burden.

Fig.7 Concept III

The mechanism, hydraulic scissor lifts the whole wheelchair into the stretcher. The telescopic machine supports the rest of the lower back so that the body weight can be distributed lightly in the stretcher

Fig.8 Concept III

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V. CONCLUSION

Our main focus was to develop a smart stretcher, but while working on it we came to the method of converting the smart stretcher into a wheelchair. Instead of relying on two products, this conversion feature now simplifies transfer, the patient can rely on a single product, which is a combination of two products that are smart stretcher and wheelchair.

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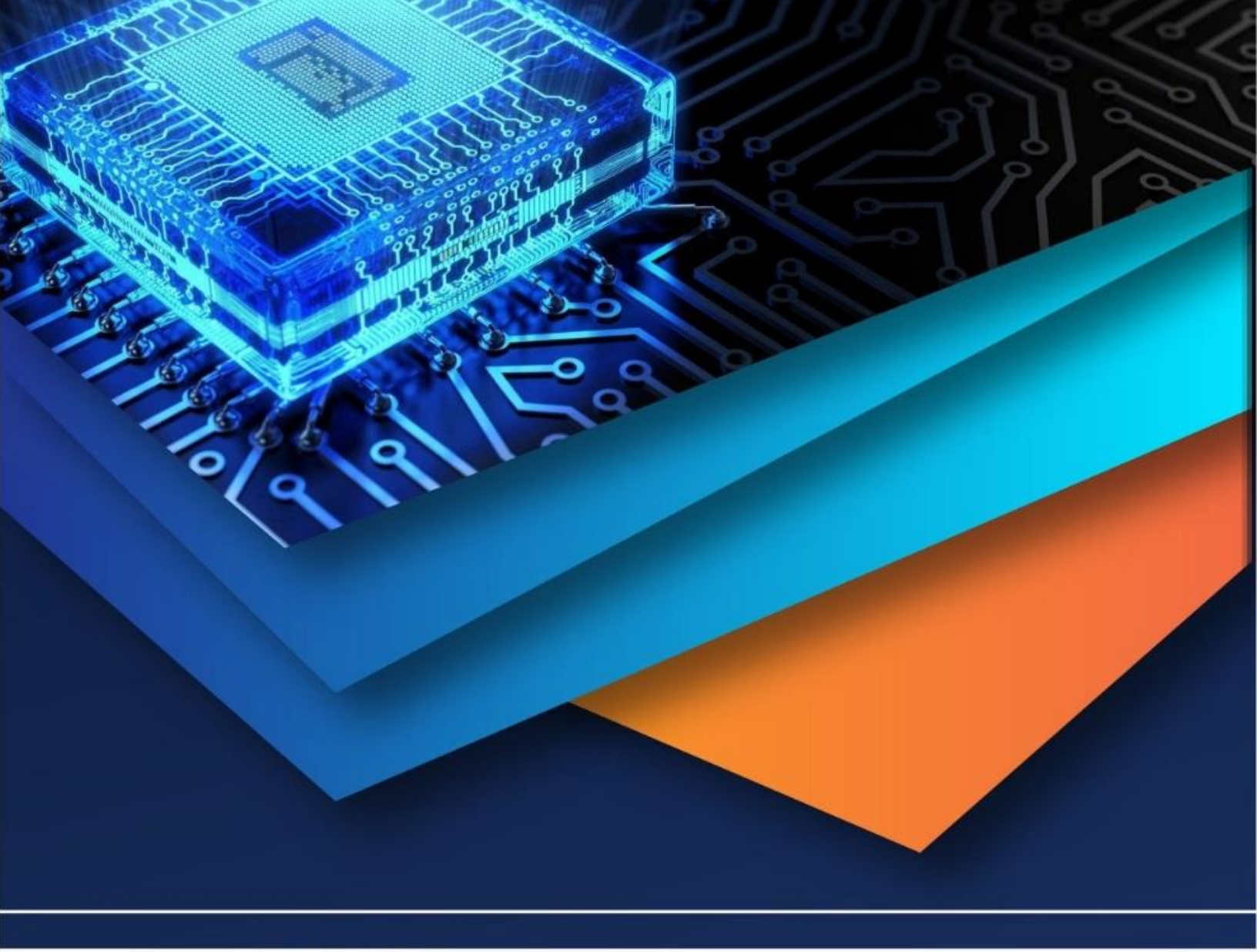

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