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Automatic Moving Wheelchair for the Patient and Physically Challenged Person

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ABSTRACT: Several people are suffering from temporary or eternal incapacities due to diseases or fates. For cases of hard or impossible walking, the use of a wheelchair is becoming essential. Manual or electrical wheelchairs are sufficient for most low and medium-level disability cases where patients can use the wheelchair helplessly. However, in simple cases, it is hard or incredible to use wheelchairs autonomously. However, in simple cases, it is hard or unbelievable to use wheelchairs independently. In such cases, wheelchair users often absent independent flexibility and rely on an important person else to switch the wheelchair. Researchers involved in a wheelchair are marking at designing smart wheelchairs to solve such problems. This paper is to review the new studies on smart wheelchair systems. It aims to evaluate the currently available technologies and to converse new coming directions for our current research plan.

Key Words: Smart Wheelchair, Health Monitoring System, IoT, Android App, Physically Disabled, Temperature & Humidity Sensors, Arduino

1. INTRODUCTION

Technology useful does make a giant difference to the world of people with limited mobility. Internet of things is one such change. The caretakers of the affected are also thankful for the fact that the convenience of technical progress makes life informal. The switch of the wheelchair can be opened by sorting into a site. The wheelchair is allowed to switch from any place in the world. The whole objective of this work was to develop a cheap, suitable, extendible, and fool-proof system for an automated, electrically powered wheelchair catering to the needs of quadriplegics and paraplegics. The unique features of the clever chair are that

- Specific modules that can be united into any wheelchair enable the patient or guardian to choose only what they feel is required thereby tumbling the outflow.
- The controller is so developed that any element that is advanced at a later step can be joined onto the wheelchair with ease.

Objective

The main program of this scheme is to enable a deactivated person to move with fewer difficulties. Due to the exponential development of knowledge with time, it is essential of the hour to deliver easily operated machinery. The several modes of a switch will permit to traffic the chair with less social interference.

1.1 Methodology

The regulatory of the wheelchair is over a robot request which is joining via Wi-Fi unit and through a physical joystick which is secure on the pointers of the chairperson, using these two will reduce the dependence of operator on additional one. We have also armed our chair with infrared sensors which will help to avoid accidents happening due to obstacles. Sensors will respond to the nearing obstacle and eventually commands will be advanced to the microcontroller (ATMega328) allowing wanted further motion. This scheme also includes a health 24-hour care scheme that monitors the well-being of the user and onward that to the request.

2. SYSTEM ARCHITECTURE

The lower figure gives you the complete idea of several connections recognized between the microcontroller and extra sensors for decent functionality.

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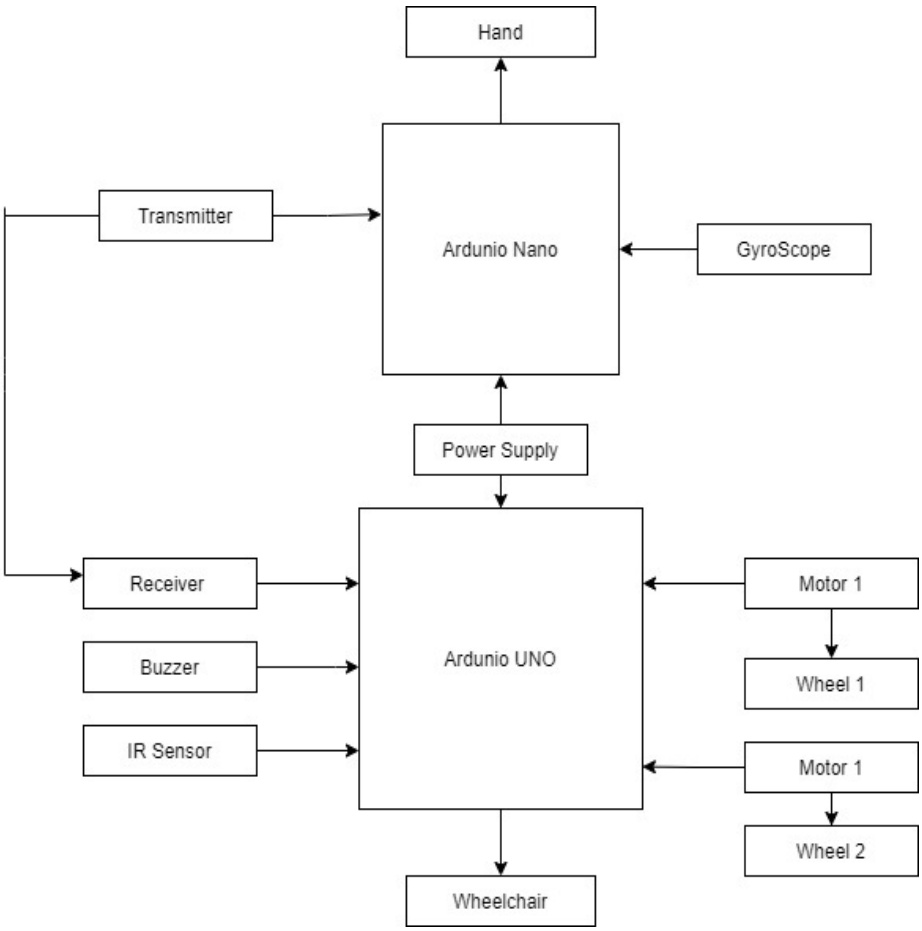
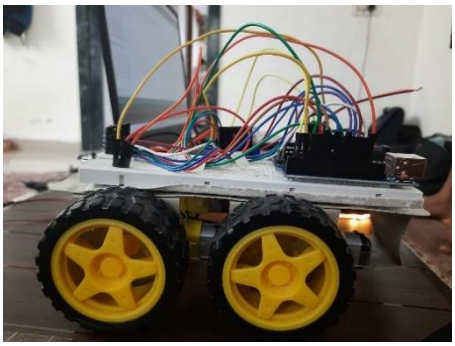


3.1 Block diagram of The System

6 FUTURE SCOPE

Further implementation of speech controlling scheme or IR sensor glasses for the program of wheelchair can be installed in the existing sample. These two will raise the flexibility equal of the chair to a very high regular, which will be highly effective and less reliant on other sources to move. Also, the application of the gearbox will increase the speed of the chair and handling as well. Wean also connect solar power panel for helping the eco-friendly arraigning of this chair. A removable metallic staircase can be attached to climb slopes and small hurdles. Hence, all these fluctuations ona whole will prove to be a boon in the medical field.

7 EXPERIMENTAL RESULT



10.1 Connection of System

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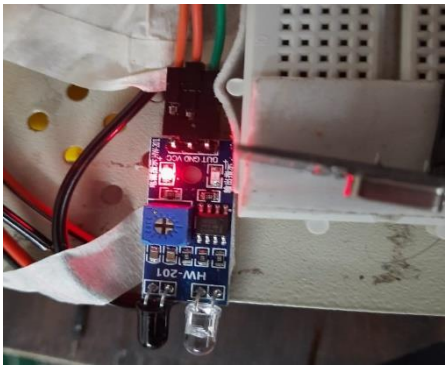
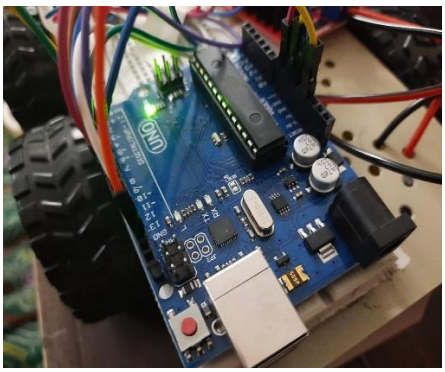
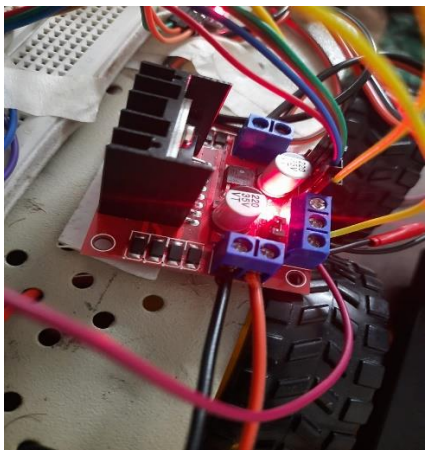


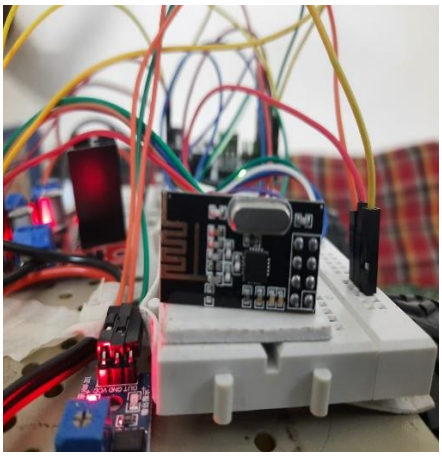
10.2 IR Sensor



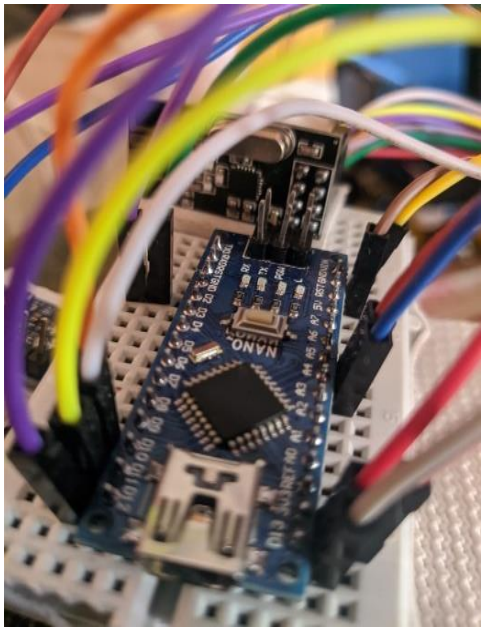
10.3 Arduino UNO



10.4 Motor Driver Controller



10.5 Transceiver



10.6 Arduino Nano

10.7 Overall System Module

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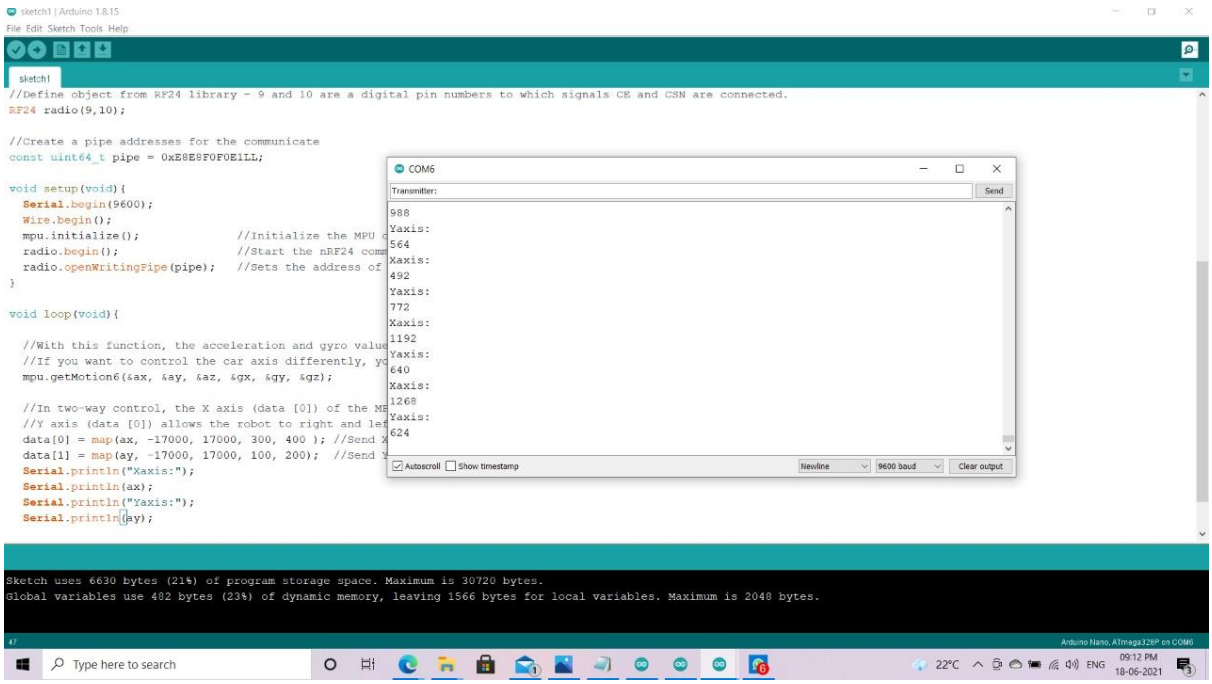
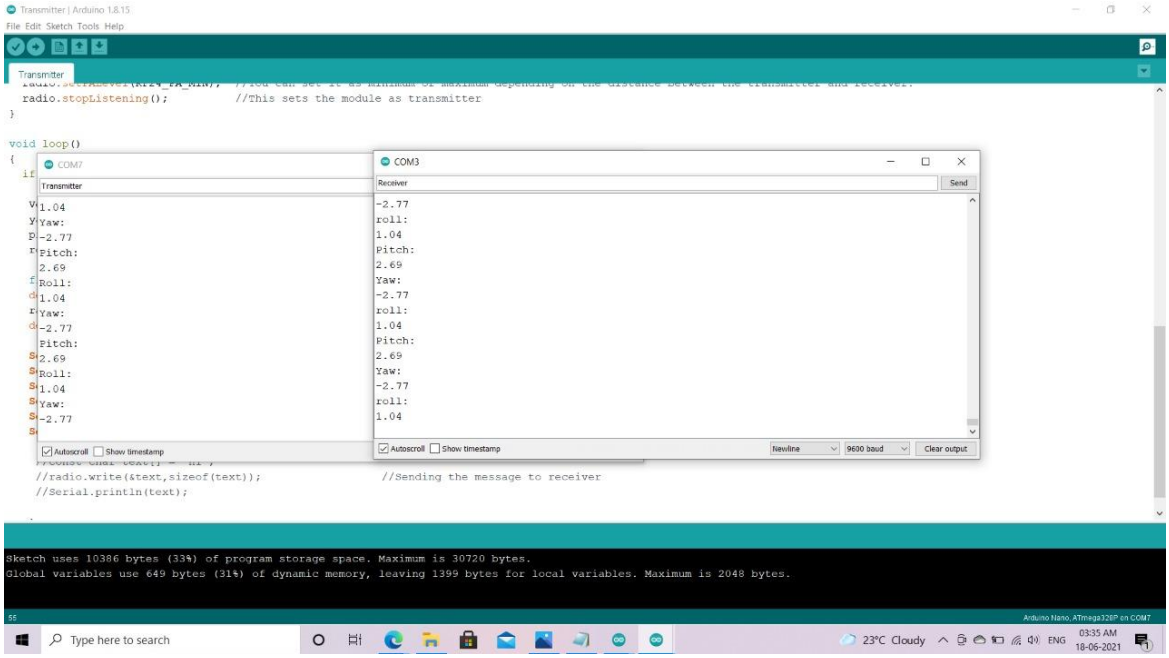


10.8 Value of Axis in Transmitter



10.9 Receiving the value of Pitch, Yaw and Roll

8 CONCLUSION

The needed completion of this project will allow great ease in movement and mixing of disabled persons with negligible human labor. Also, it is easy to use and function as the movement is just one touch missing. The module is compact and inexpensive; the various sensors current in the prototype along with the health monitoring system makes it a very enhanced module, which is very reliable and helpful.

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