



SMART WHEELCHAIR USING GESTURE

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ABSTRACT

This paper proposes a system to help disabled people move freely and safely and take the activities of a therapist in a cost effective manner. It uses hand gestures . The aim is to compact many facilities in a single wheelchair at low cost.

INTRODUCTION

The most important details in this text are that there is a significant increase in the disabled and old citizens taking the help of their family members to move inside and outside of the house premises. This is due to the need of people injured in wars and accidents, as well as for paralyzed people. The main objective of the paper is to plan and implement hand gesture-controlled wheelchair that works on the gestures of the human hand. Help from care givers and/or care-giving devices are indispensable to the daily lives of aged or handicapped people, but help from care givers imposes large physical and time loads on the care givers and a mental burden on those who receive help. This project is an advanced approach to changing the physical gesture of hand into an electrical signal and transmitting it through a transmitter. It provides an instrumental solution to people who have difficulty in moving. It has paralyzed or lost their limb in an accident. The wheelchair is wireless and has a range of 200 yards, making it a cost-effective solution to physical disability.

LITERATURE SURVEY

1) T Mohit D Patel, et al. developed an Android-controlled wheelchair to help the disabled. Tan Kian Hou, et al. developed an

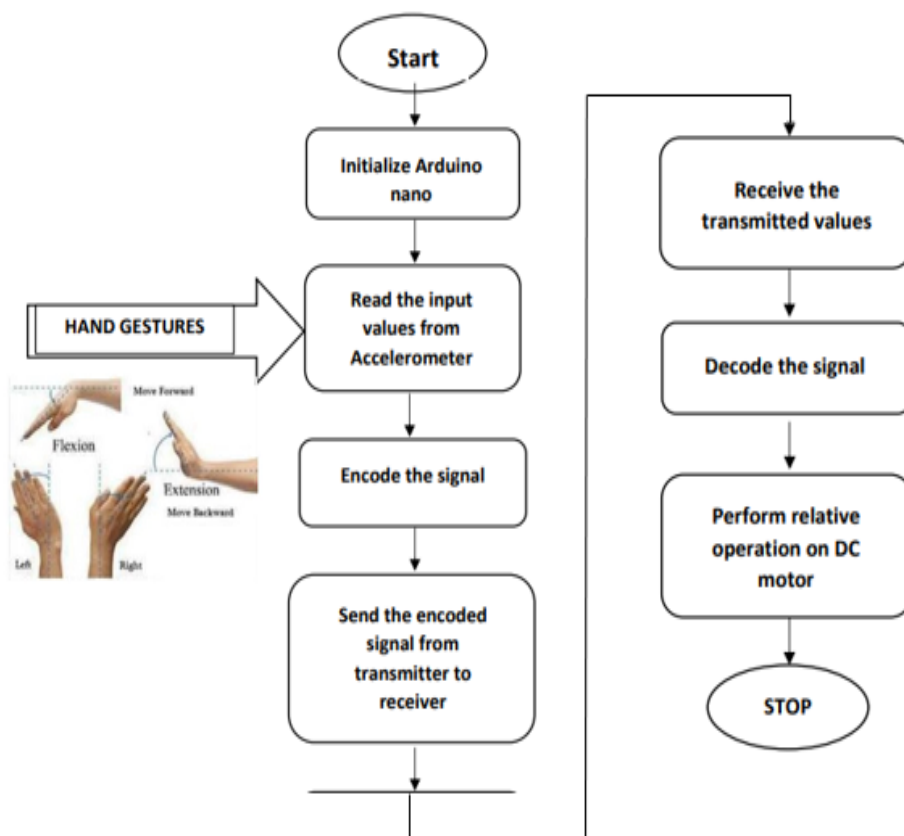
Arduino-based voice controlled wheelchair to assist people with both upper and lower limb disabilities. The success rate of the wheelchair was high and the cost was kept low to make it affordable.

2) Masato Nishimori and Khagendra Joshi developed a voice-controlled wheelchair to assist physically challenged persons. They used a grammar-based recognition parser named Julian to successfully recognize three types of commands. The smart Wheelchair control unit consists of an integration of AVR microcontroller, Bluetooth, GSM module, ultrasonic and infrared sensors, temperature sensor LM35 and motor driving circuit.

METHODOLOGY

- The hand gesture movements of the hand as backward, forward, left, right and stop. The transmitter is placed on hand and receiver on the wheelchair. The wheelchair is moved by the hand gesture.
- Based on tilt of the human hand and its acceleration calculated using accelerometer sensor the values is passed to the Arduino board and respective actions are formed. Then the signal is transmitted through the transceiver to the receiving block of the wheelchair.
- At the receiving end the data signal is decoded and respective pins are made high using the code written in Arduino IDE. The result of motion of the hand the digital signals from Arduino is given to the motor driver for respective movement of the DC motors for movement of wheelchair in a desired direction of the hand gesture.

BLOCK DIAGRAM



RESULTS



Fig 1: Front view of the wheelchair



Fig 3: DC motors starts when the H-Bridge gives the power supply



Fig 2: Side view of the wheelchair



Fig 5: Transmitter for the wheelchair

CONCLUSION

This project is about user-friendly wireless controlled wheelchair which is designed for the disabled and old citizens who can use it to move inside and outside of their home premises without any risk. This device uses the hand gestures as signals to control the wheelchair. It is user-friendly and cost effective. Our results are satisfactory and accurate. The parts like sensors, transceiver, micro-controllers are cheap and easily available. It has only simple operations and all can operate with ease. It is a boon for senior citizens as it replaces for imported one.

REFERENCES

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