FINAL YEAR PROJECT REPORT

Intelligence Wheel Chair

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Intelligent Wheel Chair

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Abstract

Electrical wheel chair is very famous from decades to enable paralyzed people to move in the real world. The cheapest branded electric wheel chair will costs you one and half lac PKR which is very un affordable for average people in the Pakistan.

So we came up with an idea to convert cheep manual wheel chair into an intelligent electric wheel chair. This whole will costs you about fifteen thousand PKR which is very easily affordable for average people in Pakistan.

Our Project is to recognize of paralyzed people. The patient sitting on the intelligent wheel chair will move his or her hand and our circuit will interpret and will move the wheel chair accordingly.

We have used IR Transmitter Receiver pair to interpret and send that data to a dedicated microcontroller and the microcontroller will move dc motors attached with the wheel chair.

Acknowledgements (optional)

This project is not only the pieces of wood, metal or anything else, this is a complete knowledge placed together with the pieces of wood metal and wires to make a sort of engineering equipment. We say our special thanks to the people from where this knowledge was originate and to the people who was the cause of reaching this knowledge to us.

We say special thanks to Mr. Abdullah SaqlainSahi our Project Advisor who keeps us helping throughout the project by correcting and ignoring our stupid mistakes.

All the credit of our project goes to him.

Dedication (optional)

This project is dedicated to the most honorable person of this world, the one who take all mankind from the deep darkness to the light of knowledge and the one who show us the way of Allah the right way, The Holy Prophet Muhammad P.B.U.H.

After that our project is dedicated to the people who teach us and helps us how to live and survive in this tough world mean all of our teachers form grade one till now.

Our Special dedication is to our kind Project Advisor Mr. Abdullah SaqlainSahi who guided us in the whole process. His help in circuit designing and mechanical designee enabled us to finalized our project.

Table of contents

Chapter 5

2. Experiences, problems and limitations
3. Result and discussion
4. Conclusion
5. References
6. Appendix

Chapter I.

1. Introduction

This section will give you some brief details about our project. Our objective was to interpret one's hand movement and to make a wheel chair which will move accordingly we have gone through several methods to recognize hand gestures.

Now a day's electrical wheel chairs are mostly used for movement of paralyzed people. The cheapest branded wheel chair costs you RS150,000 which is unaffordable for average people in the poor countries like Pakistan.

This section will also tell you the problems faced and the characteristics of our project. The basic idea behind the project was to detect one's hand movement using image processing and then control a mechanized arm by communication between image processing system and mechanized arm. But it was an expensive solution for us make a cheap and affordable electrical wheel chair.

Then we move to interpret hand gestures with an optical mouse. This was a cheap solution for our project. But it didn't work.

Finally we have decided to interpret hand gestures with IR transmitter receiver couple which is known as proximity sensor too. And it worked fine.

This project consists of three basic sections. First is hand movement detection and then the control board and mechanical portion.

1.1 **Hand movement detection:**

When we start doing our project then we had decided that we will interpret hand gestures using digital image processing in MATLAB. But after our final project I presentation the committee has ask us to

do this project without using laptop with the wheel chair because it was an expensive solution. So we decided to do this project with Optical mouse but It didn't worked and finally we did it with IR optical sensors.

1.2 Wheel Chair

For electrical wheel chair we purchased a cheap wheel chair and purchase viper motors of Land Cruiser and two pairs of switch gears and with the help of a technetion we mounted all of these thing systematically to make our final mechanical wheel chair.