**A Value Addition Program -EMBEDDED-C**

**Class: S.E. (Electronics and telecommunication)**

**VAP Dates: 30/07/2018 to 04/08/2018**

**Co-ordinator: Prof. Sandeep Kate**

**PROJECT REPORT**

**ON**

**PROJECT NAME**

Gesture Controlled Wheelchair

**SUBMITTED TO**

Vishwaniketan's Institute of Management Entrepreneurship and Engineering Technology

Kumbhivali, Tal- Khalapur, Raigad, Maharashtra 410202

**BY**

**Group Member 1: Gaurav Nemade**

**Group Member 2: Mayuresh Bhopi**

**Group Member 3: Daksh Mann**

**Group Member 4: Nikita Patil**

**UNDER THE GUIDANCE OF**

**Mr. Rohit Kumar**

**Aedifico Tech. Pvt. Ltd. New Delhi**

****

****

Vishwaniketan's Institute of Management Entrepreneurship and Engineering Technology

Kumbhivali, Tal- Khalapur, Raigad, Maharashtra 410202

**D:\NMA\NMA\NMA_ME\ME\SEM-IV\Report\IDS Report\certificate.png**

This is to certify that Dissertation report entitled,

**Gesture Controlled Wheelchair**

Submitted By

**Group Member 1: Gaurav Nemade**

**Group Member 2: Mayuresh Bhopi**

**Group Member 3: Daksh Mann**

**Group Member 4: Nikita Patil**

is a bonafide work carried out by them under the supervision of Prof. Sandeep M. Kate and it is submitted towards the partial fulfillment of the requirement of **VAP Project.**

|  |
| --- |
| Prof. S.M.Kate |
| **VAP Co-ordinator:** |
|  |

**Place:** Kumbhivali

**Date:27/10/2018**

**Acknowledgment**

This project was successfully completed under the guidance of Prof. Sandeep Kate, entire staff of EXTC Department and our VAP trainer Mr. Rohit Kumar from Aedifico Tech. Pvt. Ltd., New Delhi.

We would like to express my special gratitude and thanks to industrial experts for giving me such attention and time.

Our thanks and appreciations also go to my classmates for all the support they provided.

|  |  |
| --- | --- |
| Date: 27/10/2018 | **Group Member 1: Gaurav Nemade**  **Group Member 2: Mayuresh Bhopi**  **Group Member 3: Daksh Mann**  **Group Member 4: Nikita Patil** |
| Place: **Kumbhivali** |  |

**List of Abbreviations**

|  |  |
| --- | --- |
| **Abbreviation** | **Details** |
| **IC** | Integrated circuit |
| **RF** | Radio Frequency |
| **MPU** | Microprocessor Unit |
|  |  |
|  |  |

**List of Figures**

|  |  |
| --- | --- |
| 2.1 Percentage of people suffering from different kind of disability. | . . . . . . . . . . . . . . . . . . . 4 |
| 4.1 Project flow and plan. | . . . . . . . . . . . . . . . . . . . 6 |
| 5.1 Hand gesture circuit with accelerometer and transmitter. | . . . . . . . . . . . . . . . . . . . 8 |
| 5.2 MPU6050 and RF transmitter and receiver. | . . . . . . . . . . . . . . . . . . . 9 |
| 6.1 Prototype. | . . . . . . . . . . . . . . . . . . . 15 |
|  |  |
|  |  |
|  |  |

**List of Tables**

|  |  |
| --- | --- |
| 5.1 Reference Voltages. | . . . . . . . . . . . . . . . . . . . 11 |
| 6.1 Components and input voltage supplied to them. | . . . . . . . . . . . . . . . . . . . 13 |
| 6.2 Threshold angle of hand gesture. | . . . . . . . . . . . . . . . . . . . 14 |
|  |  |
|  |
|  |  |
|  |  |
|  |  |

**Contents**

|  |  |
| --- | --- |
| 1. Introduction. | . . . . . . . . . . . . . . . . . . . 1 |
| 2. Background. | . . . . . . . . . . . . . . . . . . . 3 |
| 3. Problem Definition and Scope. | . . . . . . . . . . . . . . . . . . . 5 |
| 4. Project Plan. | . . . . . . . . . . . . . . . . . . . 6 |
| 5. Detailed Design. | . . . . . . . . . . . . . . . . . . . 7 |
| 6. Implementation and Result. | . . . . . . . . . . . . . . . . . . . 12 |
| 7. Conclusion and Future Enhancements. | . . . . . . . . . . . . . . . . . . . 16 |
| Bibliography | . . . . . . . . . . . . . . . . . . . 18 |

**Abstract**

The aim of this project is to prepare a Hand Gesture Controlled Wheelchair for the physically disabled people who face difficulty in moving from one place to another in day today life. These days joystick controlled wheel chair is available in the market whose cost range between Rs. 80,000 to Rs. 150,000. We have prepared this Hand Gesture Controlled Wheelchair in Rs. 22,000.

An accelerometer is used as a sensor which gives an analog signal on its movement in any of the 6 axis directions, that is positive X axis, negative X axis, positive Y axis, negative Y axis, positive Z axis, negative Z axis. In this project we have considered X and Y axis for the direction. Further the input from sensor is given to encoder which sends the data wirelessly through the transmitter, then the data is received at the receiver end and the sensor data is decoded and finally given to microcontroller. Based on data received the from accelerometer the microcontroller sends the signal accordingly to relays to move the wheelchair in forward, backward, left, right directions. The accelerometer used here is MEMS (micro-electromechanical system).