**Humanitarian Projects Contest 2020**

**Project Report**

**Title of Project:**

SMART WHEEL CHAIR

**Date:**

14TH MARCH 2020

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| Chapter Name | SBC03711A Kereala Section, Vimal Jyothi Engineering College(VJEC) Student Branch Chapter,  IA34 Chemperi,Kannur,Kerala India |
| Country | INDIA |
| Team Leader Name | SHARAN RATHNAKUMAR |
| Contact Email | [sharanrathnakumar@ieee.org](mailto:sharanrathnakumar@ieee.org) |
| Project Location | KERELA |
| Project Cost | 123$ |
| Team Members | SHARAN RATHNAKUMAR  ABIN THOMAS TOMY  ARCHANA MANOJ |
| Project Duration | 6 MONTHS |

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| Problem Description (Provide an overview of the project background and problem statement) | Our project “Smart Wheel chair” aims at helping physicaly disabled people to move.Every individual wish to move freely but for those who are unfortunately suffering from this issue our project will be the best solution.  Our project is not just a voice controlled wheel chair, but an integrated solution for many of common problems faced,which got as feedback from many physicaly disabled people.  The main problem we got is that the patient have to depend on other person to take them to wheel chair,that is they feel like a burdern.Another issue is that the person cant rest in bed position when they go out thus our chair have a simple solution for the above mentioned two problems.  and another feature we added is voice control so that a person can direct his wheel chair to himselves and also to drive it.There is an obstacle detecting sytem thus will stop even when the patient cant see it. |
| Situation Analysis and Specific Need  (Project Survey and engagement with community) | The problem is mainly focused on physically challenged people.  In our village there is a person who met an accident and is parallised and he cannot control the movement of his one hand now he is using a power wheel chair for locomotion. But when I talked to him he mentioned many difficulties.  For him to move he need the help of a person and to make him sit on wheel chair also he needs assistance.Thus making him feel like a burdern to his family.  We also met a doctor , Dr Ramesh TV(Nuero Surgen) who has been treating many physicaly disabled cases, thus talking with him we got good suggestions for our projects and he also congratulated us for our idea.  There is another person who is facing similar problems where he cant move his both hands.  From discussing with them we can understand the main problems they have are:  1.Requires a person to shift them from bed to chair and vice versa  2.Problem in controlling wheel chair with there hands  3.Difficulty in moving from bed to chair position.  4.To rest in bed position where they are in chair without waiting for someon to take them to bed. |
| Project Approach and Implementation Methodology | The main reason of this project is due to the draw backs of the conventional wheel chairs. Thus a brief description about this project can bring the attention of people ,this project was designed with the feedback from the users .  Our model has node mcu(ESP8266) by with which we utillises the wifi connectivity where we connect our mobile so that we can use the voice recognition system to convert our words into text, now the word received by the board is processed and at the same time an ultrasonic sensor built on a servo motor will give the information whether any obstacle is present near by if no the board(ESP8266) will drive the motor with the help of a motor driver according to the given command.The next function is by the help of another motor we can shift the postion of chair , that is when the user says chair the motor shaft arrangement will rotate and shift into chair position if the user said bed the mechanism where motor spins so that the bed position is attained.  The advantage of this mechanism is ,since the chair can shift its positon from bed to chair and vice versa by voice command the user can switch to bed mode and direct the wheel chair towards him and easily roll on the chair, and then again by voice command he can switch to chair mode. The project implementation can be done by:  1.Contacting with the Handicaped association and with a small demonstration.  2.Through doctors, which we have already mentioned |
| Project Work Plan  (Flow chart and time-flow of activities) | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | JAN | FEB | MARCH | APRIL | MAY | JUNE | | IDEA STAGE | RESEARCH  AND CONTACTED  MANY AUTHORITIES | PROTOTYPING | CONTACTNG DEALERS FOR SETTING UP PRODUCTION ,TOOLS AND OTHER ARRANGMENT | PRODUCTION PRIMARY STAGE | PRODUCTION SECONDARY STAGE AND SALES | |
| Impact of Project (overview of long-term outcomes of project on community) | This project will help lot of people who are suffering with physical problems  and also will have a psychological impact , because all human beings have a mentality to be free and independent, but due to present circumstances they are not so.  For the conventional wheel chair system one person is required to shift a person from bed to wheel chair and also to take wheel chair from where it is kept.  But our smart wheel chair can be oprated by voice command and also there is no necessity of another person to shift the patient to wheel chair, he himselves can do it thus making him independent and also free, because at any time he can call the chair towards him. |
| Environmental Impact (overview of ecological effects of project on the environment and any measures taken to reduce or limit any detrimental effects on the environment) | This project have no environmental impact |
| Risk Analysis | Smart Wheel Chair has no risk issues , otherthan those due to technical issues  But we will make this product with high quality materials |
| Sustainability (Overview of the conditions required to establish a sustainable solution) | Smart Wheel chair will be sustainable, that is the impact on social isues is reflected as this project is humanitarian and benefits our society, there wont be any environmental impact as there is no harmful materials used ,economical aspects is that we are aiming to make the product with fine quality materials and to collaborating with charity trust to reduce the price. |
| Scalability of Project (Possibility of replicating and adapting project in other communities around the world) | This project is universal, this method can be adopted on every country, no modifications are neccessory.Easily replicable. |
| Partnership & Collaborations (Any partnerships done with local businesses and organisations) | Not yet, but trying to make collaboration with Charity trust to sell this product at lower price. |
| Project budget | |  | | --- | | PROTOTYPING | | NODE MCU (MICROCONTROLLER),SENSOR | | 9$ | | MOTORS (4 GEARED MOTOR+1SERVOMOTOR) | | 14$ | | BODY PARTS(MULTIWOOD) AND WHEEL OTHER PARTS | | 50$ | | TOOLS ,WIRESetc.. | | 49$ | | OTHERS | | 1$ | | TOTAL | | 123$ | |
| Short Bio of each Member of the Project Team | |  | | --- | | SHARAN RATHNAKUMAR  A technology lover who loves to make new things ,loves coding ,vedio editing , photography ,web designing etc.Present IEEE IAS SBC VJEC Technical coordinator. | | ABIN THOMAS TOMY  Innovative thinker ,loves thinking differently, talent in marketing skills , keeps good contacts with other.Like to find alternatives for every problem. | | ARCHANA MANOJ  Good presentation and communication skills , loves helping others and talking Present Membership Development Officer (MDO) of IEEE SB EXECOM. | |
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Notes

* The whole proposal must not exceed **15 pages**
* Use Time New Roman, Font Size =12, Not Bold and Italic.
* Full Name of each team member should be included in the bio and cover page(Namesas printed in Passport: NO Nicknames)
* After filling the proposal, you should change it to PDF format then submit it in the online form