



# Electric Powered Wheelchair For Mobility Impairment

145. Mbeya

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## Introduction:

For a long time a number of mobility disabled people in Mbeya city have been facing economic problem (poverty) and also discrimination from the members of the society.

The study was conducted by young scientist students from Mbeya secondary school since February 2016 up to July 2016 and data was collected from various mobility disabled people. Data was collected from 80 mobility disabled people in different areas through interview and direct observation.

Basing on the data collected it shows that none of them have electrical powered wheel chair, some of them have manual operated wheel chair and some of them have no even manual operated wheel chair.



Due to that facts mobility disabled people and their families have poor health and economic status. This study aims to provide solution to mobility challenges in which mobility disabled people are facing by making electric powered wheel chair which will enable them to move easily.

## Methods;

Documentary resources such as internet and library were used for reference.

Observation was used to collect data on the availability of physical and mobility disabled people in Mbeya city.

Observation and interview methods was used to collect data from health officers, mobility impaired people, disabled people centers and families that have disabled people.

Test, measurements and experiments was conducted when designing the electric powered wheel chair and examining the application and its efficiency.



## Results:

A total of 8 different areas were visited to find out the presence of physical and mobility disabled people who were above 18 years old, the result was as shown on table 1.

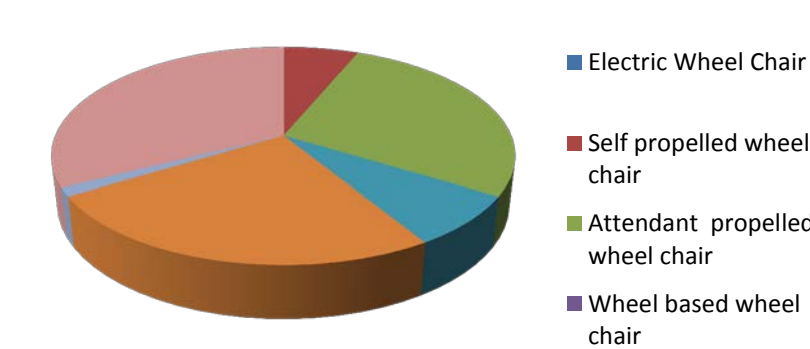
Based on the data collected from the studied areas, the number of mobility impaired people was higher (37.5) at Lyunga vocational training center for disabled people than the rest studied areas simply because it is a center where disabled people are assisted to acquire various skills. The business centers like Mwanjelwa covers 17.5% of the total number of mobility disabled people studied in 8 areas in Mbeya city.

In the study area observations and interview methods were used to collect data from 80 respondents with mobility disabilities as shown in the table 1.

The data collected as shown in table 1 indicates that most of individual with mobility disability have no any devices used to facilitate movement, 22% uses attendant propelled wheel chair. Others use the rest of the devices as shown in table 1. According to this study experience shows that, there is no any availability of electric powered wheel chair in Mbeya city which could be used as effective device for mobility disabled people. This study aimed to create electric wheel chair which is more effective than other mobility aid available in Mbeya city.

STUDY AREA	NO. OF MOBILITY DISABLED	PERCENTAGE %
I. Mbeya referral hospital	10	12.5
II. Lyunga disabled centre	30	37.5
III. Mbatizi road	8	10
IV. Mwanjelwa	14	17.5
V. Hanga	8	10
VI. Forest	4	5
VII. Sae	6	7.5

PIE CHART SHOWING MOBILITY DEVICES USED TO ASSIST MOVEMENT IN MBEYA CITY



DEVICES	NUMBER OF USERS	PERCENTAGE %
I. Electric wheel chair	0	0
II. Self propelled wheel chair	5	6.25
III. Attendant propelled wheel chair	22	27.5
IV. Wheel base	0	0
V. Walkers	6	7.5
VI. Crutches	20	25
VII. Mobility scooter	1	1.25
VIII. None	26	32.5



## Conclusions

The study came up with the solution that can solve the mobility problem, the solution is the use of electrical powered wheel chair. This device will enable mobility disabled people to move from one place to another without the needs of help from other person or relatives, and he/she will have the ability to reach various areas so as to perform his/her daily life activities. Also family members or relatives who are using a lot of time for caring their relatives with mobility disability will spend little time since he/she will be able to drive himself without any help, this can increase time to spend for economic and social activities of the family members or relatives.

## References

Working principle of DC motor and how to control them can be found at..

<http://www.electrical4u.com/dc-motor-or-direct-current-motor/>

-Mobility disability

- <http://disability.illinois.edu/instructor-information/disability-specific-instructional-strategies/mobility-impairments>

- <http://www.washington.edu/doit/mobility-impairments>

## Acknowledgments

Our study was made successful due to excellent assistance which we received from our supervisor Mr. Mumello, who actively encouraged us and provide us with guidance in each stage during our study, we express our sincere thanks to Mr. Yolim who assisted us in writing and analyzing data collected during our study.

We express our sincere thanks to Head of Lyunga vocational training centre Sister Maria and all mobility disabled people for their co-operation during this study.

We are greatly indebted to Mbeya secondary school administrators, headmistress Magret Haule, and other teachers who gave us support during our study, special thanks are extended to all young scientist members and teachers in Mbeya secondary school for giving us moral support and encouragement during our study.