

ABBIE

(AR/VR Based roBot for Intuitive Exploration)

Description:

Though travelling has been fun for most, but some of them find it hectic and fearsome. It may be either due to lack of exposure for the procedures incorporated, issues related to communication or the person may be specially-abled. In any or all of the above cases, travel assistance plays an important role.

The present work involves developing a bot for assisting a specific group of people at crowded areas or areas of public interest. Assistor bot is a small capsule shaped bot (similar to R2D2 from Star Wars) which consists of a touch screen and a speech recognition software which efficiently assists people in moving with ease at unknown places where they have been for the first time viz. Airport, Railway station, Bus stand, some new mall etc.



Fig. (a): Deployment of ABBIE at airport



Fig. (b): Deployment of ABBIE at airport

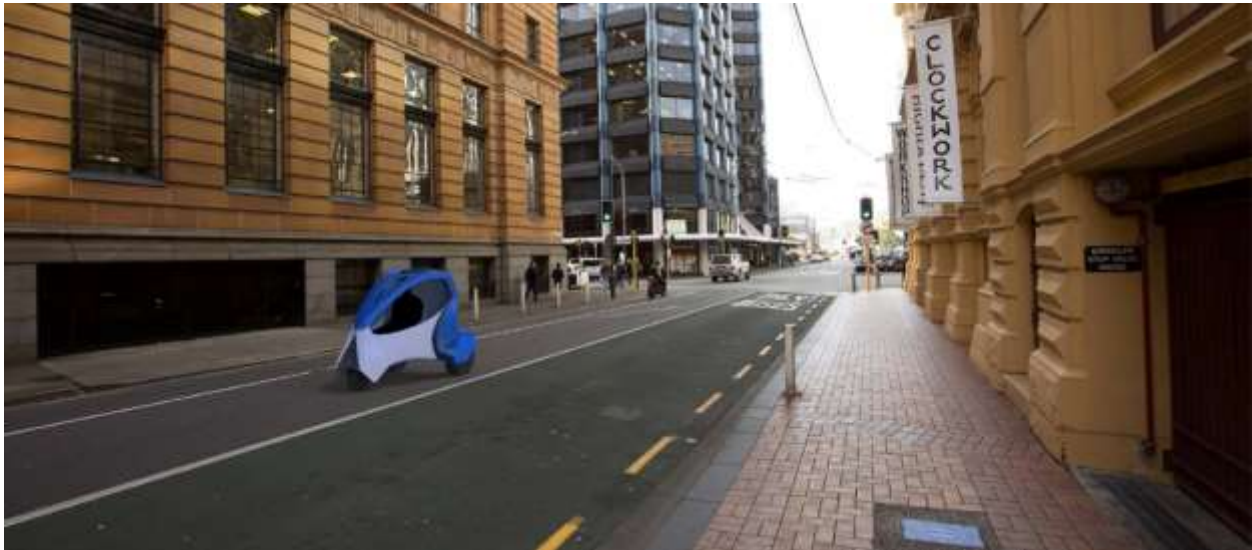


Fig. (c): Deployment of ABBIE for out-bound travel

References :

1. <http://www.worldbank.org/en/topic/disability/overview>
2. Accessible tourism research



Fig. (d): Deployment of ABBIE for out-bound travel

The assist bot can be deployed at all the public places running on a 2 kW battery that can be charged using induction charger as soon as the bot is placed in its charging spot. The assist bot runs on a 1kW DC brushless motor similar to the ones used in electric chairs. In case of people with disabilities (i.e. if a person answers yes to disability), the bot uses two sets of servo motors in order to open a place for the handicapped person to sit, helping the user to undergo all the procedures without anyone's help. The servo motors used for opening and closing of the foldable chair are powered by the battery bank and require a maximum of 5W. Power in excess is distributed for the electric circuit of the project consisting of a speech recognition module, a touch screen module, a microcontroller or microprocessor interface and a motor controller circuit.

Therefore, deployment of such bots not only allows the disabled people to commute independently at crowded places, but also ensures effective utilization of technology for the safety of weaker sections of the society.

Service/Operating Cost:

ABBIE has 1kWh capacity battery gives 200km or 125miles.

For 100miles = 0.8 kWh < 3370MPGe

Operating cost is less than \$0.1/100miles

Delivery Cost:

Material cost: \$150/m² for light weight carbon fibre material

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Realizable revenue:

One billion people, or 15% of the world’s population, experience some form of disability [1]

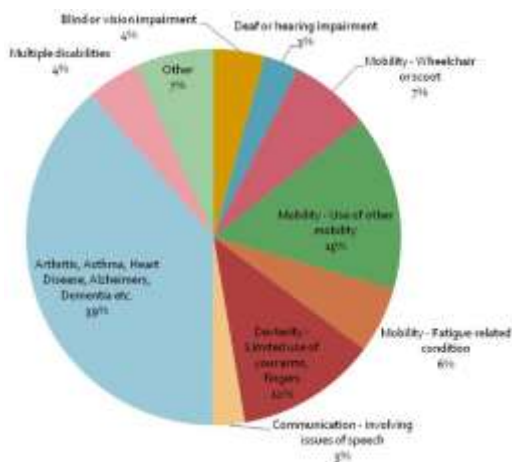
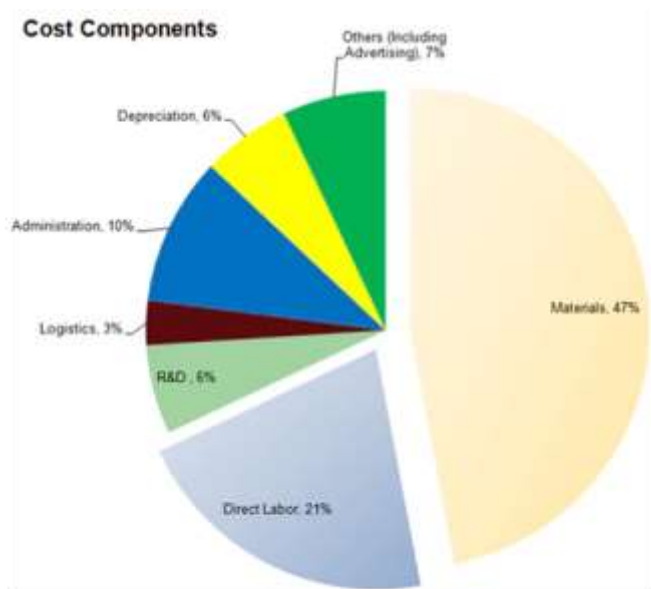
Disability prevalence is higher for developing countries. [1]

One-fifth of the estimated global total, or between 110 million and 190 million people, experience significant disabilities [2]

Survey conducted by Open Doors Organization (ODO) indicated that “Disability Travel Generates \$17.3 Billion in Annual Spending”. [2]

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For each person, a meagre amount of \$1 can fetch at least \$1.73billion per annum assuming that only around 10% of disabled people travel



SL. NO.	DESCRIPTION	COST in \$	% COST
1	Material	300	47%
2	Direct Labour / Manufacturing	134	21%
3	Research and Development	39	6%
4	Logistics	20	3%
5	Administration	64	10%
6	Depreciation	39	6%
7	Marketing	45	7%
TOTAL		641	100%

CUSTOMERS LISTING

- Airports
- Shopping Malls

References :

1. <http://www.worldbank.org/en/topic/disability/overview>
2. Accessible tourism research



- Large companies (to commute within premises)
- Railway Stations
- Small tourist places

MARKET SIZE (TOTAL ADDRESSABLE MARKET)

- The target market is at least 60% of 190 million population with disabilities.
- Assuming 60% of population belonging to age group greater than 60years travel, the total adds up to 120million
- There is regular public traffic at shopping malls the estimate of which is not available
- People travel in trains regularly whose statistics are not available

STATUS OF THE PRODUCT:

Currently a Proof of Concept (POC) is ready, which can be seen in action in the following link:

- <https://drive.google.com/open?id=0BxjI8fi6aXdyaGJabzQ1ZGFhM0k>
- <https://drive.google.com/open?id=16JNtR6kz96LkniS5B98okBQze1SNw08Jaw>

ROADMAP

Product

- Development of full-scale model and extensive research over next **6 months**.
- Deployment of the model at target areas

Sales

- Discussion with airport authorities and work out a feasible business proposal after complete development of model

Revenue

- Discussion with the airport authorities regarding charges for use of the bot

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