



NICK ZHOU

Master's Student, TUM
(Munich, Germany)



ALPHIN TOM

Master's Student, TUM
(Dubai, UAE)



HARSHINEE BAASKAR
Master's Student, TUM
(Chennai, India)

## CONTEXT

#### **GLOBAL DISABILITY STATUS**

- UN Convention on the Rights
   of Persons with Disabilities
   (CRPD) included accessibility as
   one of the eight general
   principles in the year 2008.
- Globally, around 15% per cent of the population are disabled and more than 46% of those who are over the age of 60 have a disability. [World Report on Disability 2011]

#### WHAT IS ACCESSIBILITY?

Accessibility means the ability for anyone to easily,

- REACH buildings, public places, communications, transportations etc.
- ENTER building and other spaces
- CIRCULATE inside buildings and other places
- USE all the services and communication materials.

# Environmental Accessibility Transportation Accessibility Information and Communication Accessibility

## ACCESSIBILITY MATRIX

|                                     | Entrance | Path | Toilets | Family<br>Restrooms | Changing<br>Rooms | Furniture | Parking and<br>Drop-off Point | Accessible<br>Rooms | Tactile Map | Reserved<br>Spaces for<br>Wheelchair | Induction<br>Loops | Wayfinding |  |
|-------------------------------------|----------|------|---------|---------------------|-------------------|-----------|-------------------------------|---------------------|-------------|--------------------------------------|--------------------|------------|--|
| Children                            |          |      |         | Х                   |                   | Х         |                               |                     |             |                                      |                    | X          |  |
| Pregnant woman                      |          |      |         |                     |                   |           |                               | X                   |             |                                      |                    |            |  |
| Elderly people                      | X        |      | Χ       |                     |                   |           |                               |                     |             |                                      |                    |            |  |
| Families                            | X        | Х    | Χ       | Χ                   | Χ                 | Χ         |                               |                     |             |                                      |                    |            |  |
| People with visual impairment       |          | Х    | Х       |                     |                   | Х         |                               |                     | X           |                                      |                    | X          |  |
| People with hearing impairment      |          |      |         |                     |                   |           |                               |                     | X           |                                      | X                  | X          |  |
| People with intellectual impairment |          |      |         | Х                   |                   |           |                               |                     |             |                                      |                    | X          |  |
| Mobility device users               | Х        | Х    | Х       | X                   | Х                 | Х         | Х                             | X                   | Х           | X                                    |                    |            |  |
| Ambulant disabled people            | Х        | X    |         |                     |                   |           | Х                             |                     | X           |                                      |                    |            |  |
| Tourist                             |          |      |         | X                   |                   |           |                               |                     |             |                                      |                    | X          |  |

Source: Dubai Universal Design Code, First Edition, February 2017

## THE PROBLEM

#### **MUNICH SCENARIO**

- Estimated 148,000 disabled persons in Munich (as of 2016)
- Munich has very poor wheelchair accessibility, especially in city center
  - Cobblestone pathways and tramways crossing
  - Limited accessible public transportation
  - Limited accessible hotels, restaurants and restrooms.
- Narrow passages and stairs block wheelchair movement

#### **DISABLED ASSISTANCE**

- There are service agencies currently delivering personal assistance to disabled persons like Ava.
- The charges could be as high as
   €31.20 per hour.
- People with disabilities can independently purchase and pay for services from a federal grant.



#### **SOLUTION GAP**

- Accessibility features alone cannot solve wheelchair movement issues in Munich
- The service registration process is complex
- Expensive due to service provider fees and overheads, but assistants gets paid less.
- Lacks flexibility and reliability
- No pay-as-you-go capabilities
- Current services is focused only on providing location specific accessibility data.

"7.9 million severely disabled people living in Germany." - Statistisches Bundesamt



#### SERVICE OPPORTUNITY

- Anyone can quickly sign-up to be a buddy and start helping.
- Get rewarded with certificates for 'soziales Jahr' on your CV



#### **DATA DRIVEN APPROACH**

- Match mobility habits.
- Database of disability and assistants
- Track, rate and reward buddies for more reliable service.



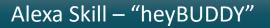
#### **AFFORDABLE SYSTEM**

- No middlemen and overheads
- Option for free voluntary service offerings
- Could fit within federal grant limits



#### **BRING SOCIETY TOGETHER**

- Different disability groups can sign-up to help each other
- Improves the social connections within the city.





### ALEXA SKILL OVERVIEW



## ALEXA OPEN THE CITY UP FOR YOU

Use your Alexa device or app as an opening node for accessing your city freely.

## CONNECT AND PAY THOUGH AMAZON

Use Amazon Pay for quick and easy payments.

#### **VOICE IS POWERFUL**

The hands provide the mobility to a wheelchair user and heyBUDDY offers them freedom to use voice

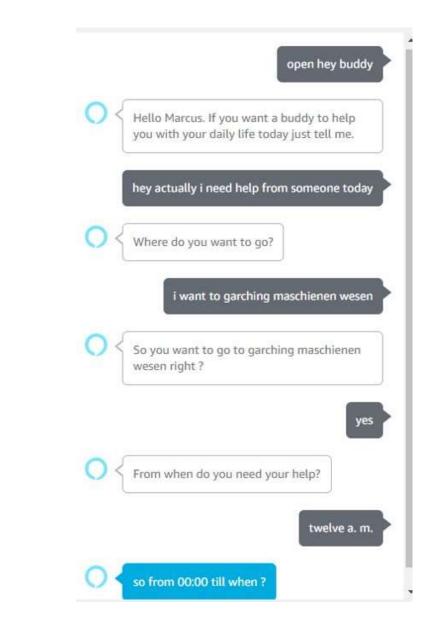
## NETWORK AND INTERFACE READY TO USE

Ubiquitous servers and massive Amazon & Alexa userbase can be leveraged.

It is as simple as asking your friend to accompany you to a destination.



## ALEXA SKILL SAMPLE CONVERSATION





## FINANCIAL MODEL

#### VOLUNTARY ASSITANCE BUDDIES

Students (age 15 and above) and social workers can register as volunteers on the platform to offer free Buddy service.

## PAID ASSISTANCE BUDDIES

Professionally trained and certified care providers (age 18 and above) can register to by a paid Buddy.

#### STATE BENEFITS TO DISABLED PERSONS

Long-term care insurance (**Pflegeversicherung**) of around €600 per month. (Ranges from €235 to €1,550 per month depending on disability level)

#### **REVENUE PLANS**

- Subscription Model for the disabled users: Multiple tiers of subscription plans that suit the user needs.
- Pay-as-you-go Model: A fixed hourly rate for the service and a small percentage will be the service fee.





- Eliminates the current problems with personal assistance service providers
- Scalable platform
- It does not require any new infrastructure developments

## EXPANSION STRATEGY

#### How we could scale in the future

#### **MORE CITIES**

The platform can be expanded to other similar cities which a large disabled population and physically limited environmental accessibility.

## MORE CATEGORIES

The current focus is on wheelchair users; however, this can be easily expanded to offer buddies for the other groups that require accessibility such as blind.

## **GROWING DATABASE**

As the database grows as additional features can be added such as computer vision, rewards and incentives, accessibility mapping of the city etc.



# DEMO







# QUESTIONS?

