

# 02

## Multisensory design—— A Community for the Visually Impaired

Visually impaired people are full of inconvenience in urban life, and the existing urban facilities fail to provide them with the convenience of material life and spiritual life. A visually impaired friendly community should consider solving the above two problems.

Then how to create an equal, free and comfortable community for the visually impaired with multi-sensory design?

Through the analysis of daily activity needs and the study of multi-sensory perception in urban space, four scenario that can be applied in all communities are designed.

A small area in the northwest community of Philadelphia was selected as a pilot area to apply the examples in its urban design.

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multisensory design, non-visual design, the visually impaired, barrier-free city

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Time: 2019.1-2019.5



## WHAT'S HAPPENING IN PHILADELPHIA

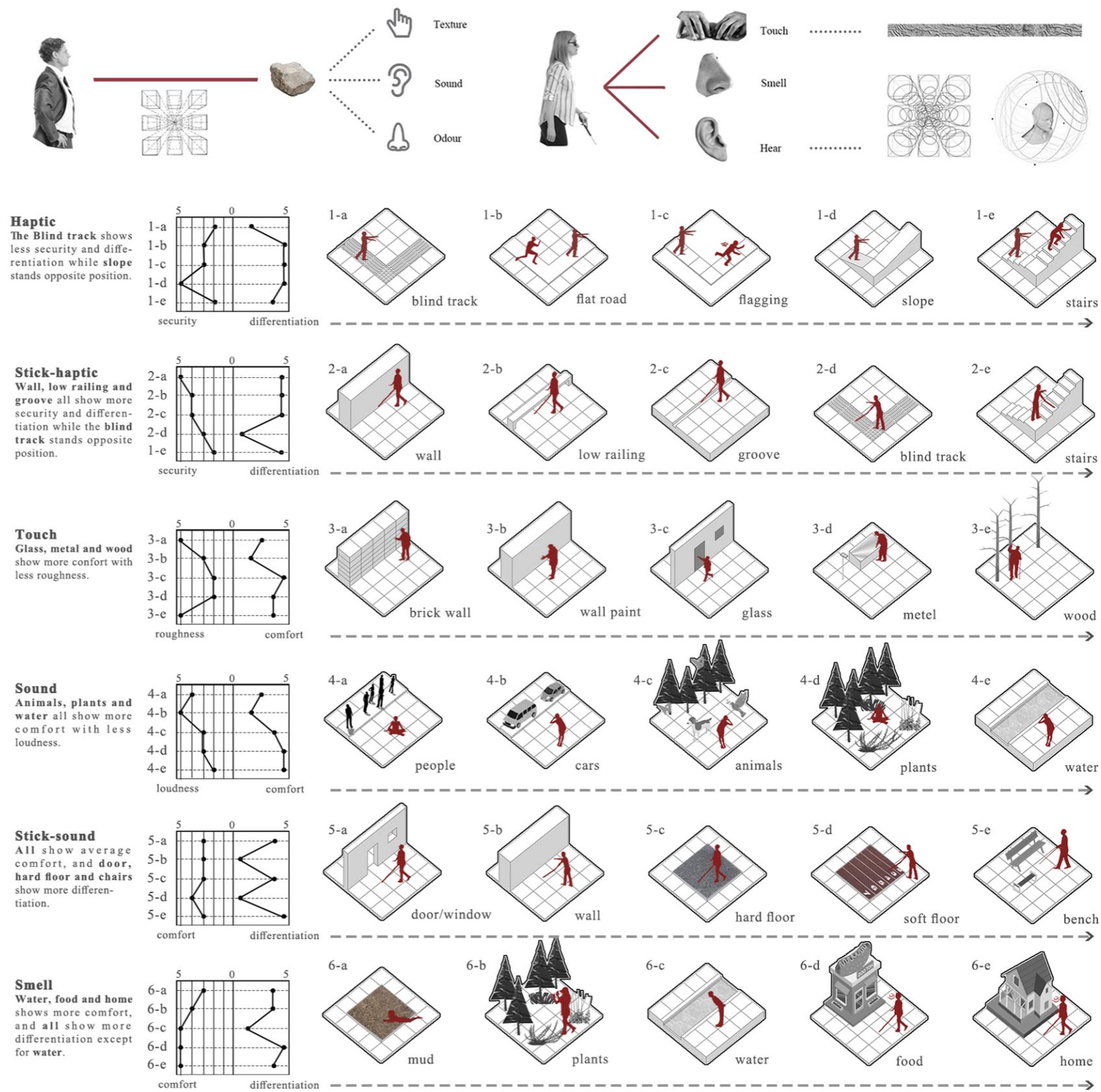
In Philadelphia, a number of organizations have been working to benefit the visually impaired in the community. By building facilities and organizing activities, they help the visually impaired to live independently and build Bridges between them and other groups.



## DIFFERENCE OF DAILY ACTIVITIES

	1 Dwelling	2 Commuting	3 Work/Study	4 Eating	5 Buying	6 Sporting	7 Leisure
ordinary people							
	Living a cozy way	Mainly by car, by bike and by foot	Learning skills or earning money	Having all kinds of food easily	No difficulty	A main way to keep fit and have fun	Having all kinds of entertainment
the visually impaired							
Hard							Time
	visually impaired	ordinary					
	Easy						

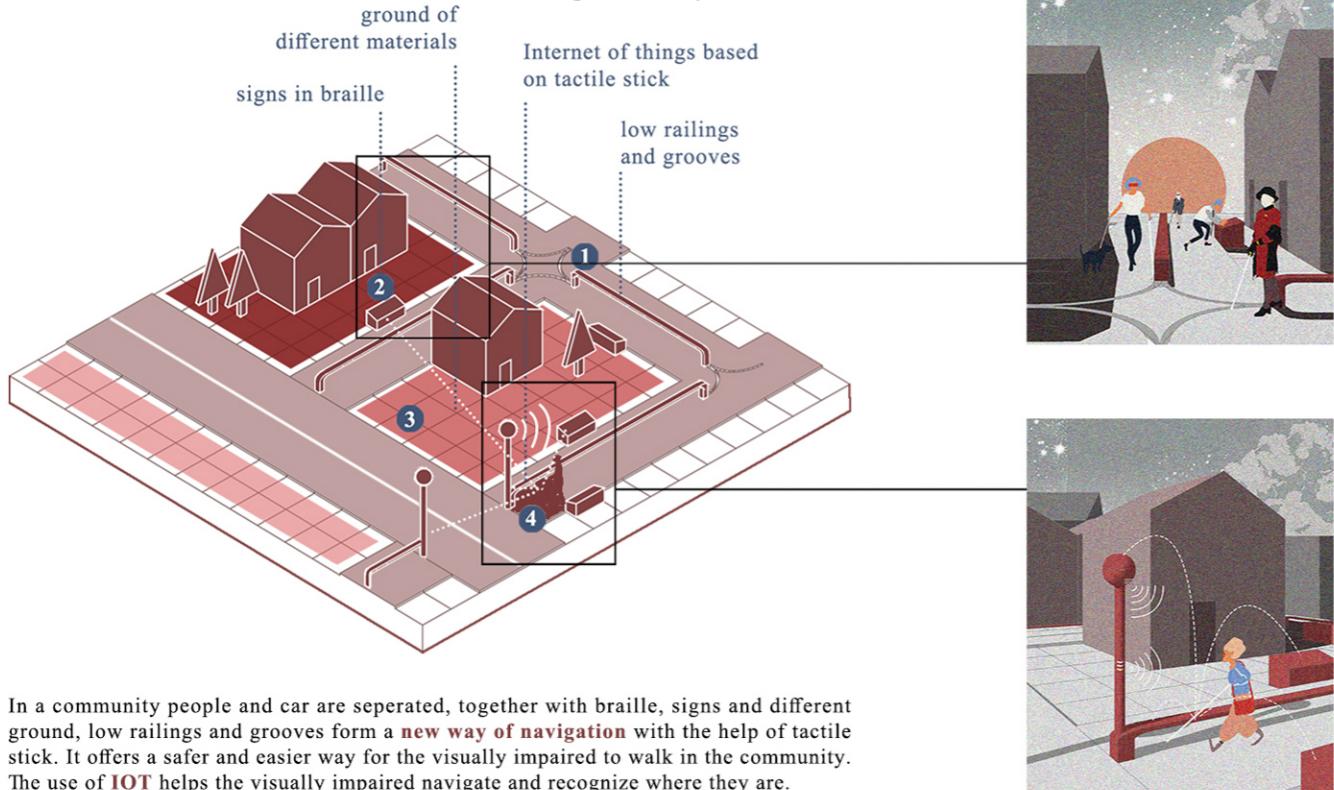
## URBAN SENSE STUDY



## SEAMLESS MULTI-SENSORIAL SYSTEM FOR IMPROVED LIVING QUALITY

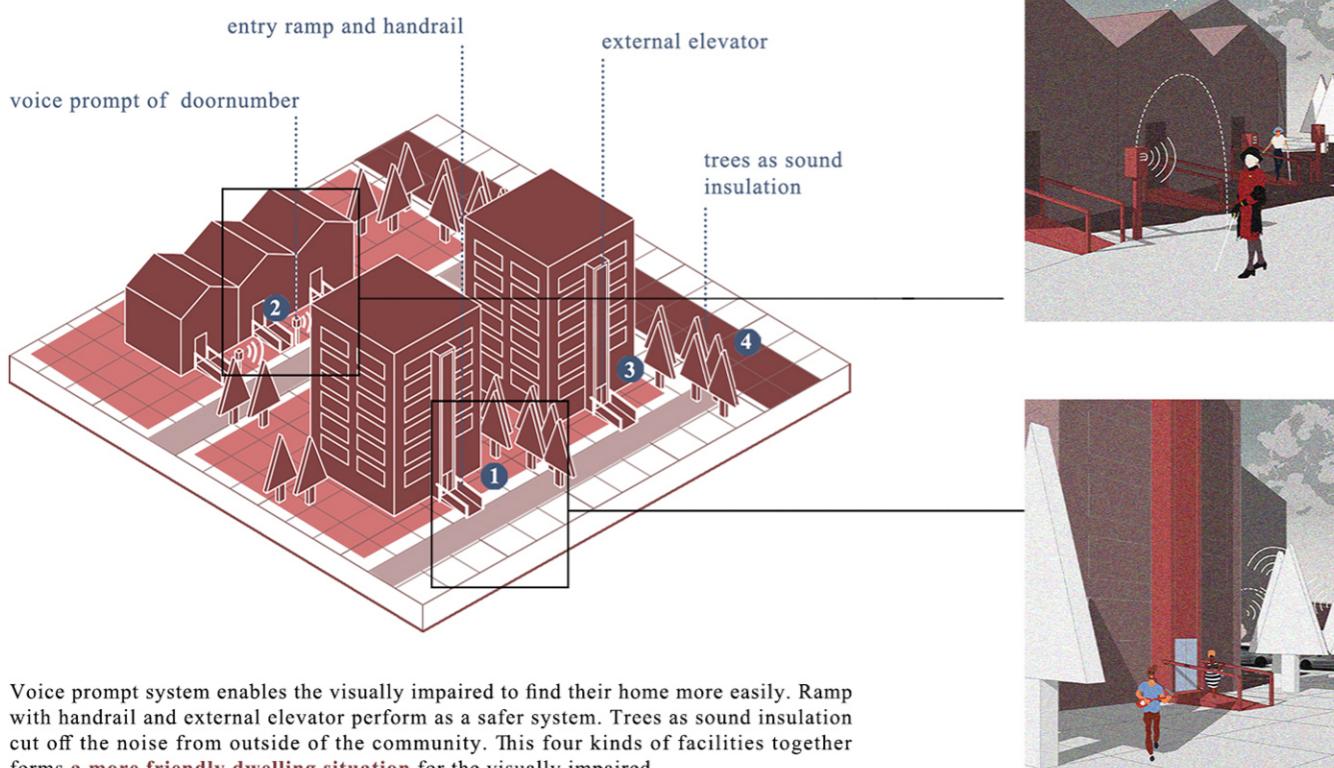
Based on the previous analysis, four scenarios are designed in which visually impaired people can live independently and comfortably: navigation, dwelling, purchasing and leisure. The design of four scenarios can be applied anywhere as a guide rule to build visually impaired friendly communities.

### Scenario 1: Tactile stick-based navigation system

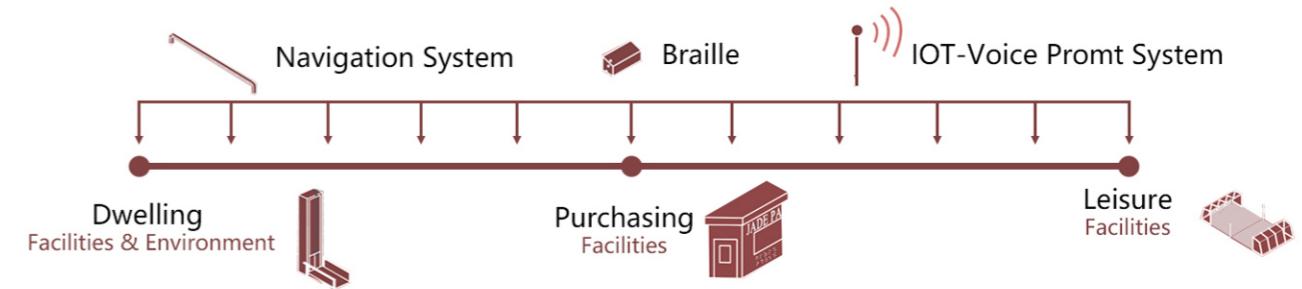


In a community people and car are separated, together with braille, signs and different ground, low railings and grooves form a **new way of navigation** with the help of tactile stick. It offers a safer and easier way for the visually impaired to walk in the community. The use of **IOT** helps the visually impaired navigate and recognize where they are.

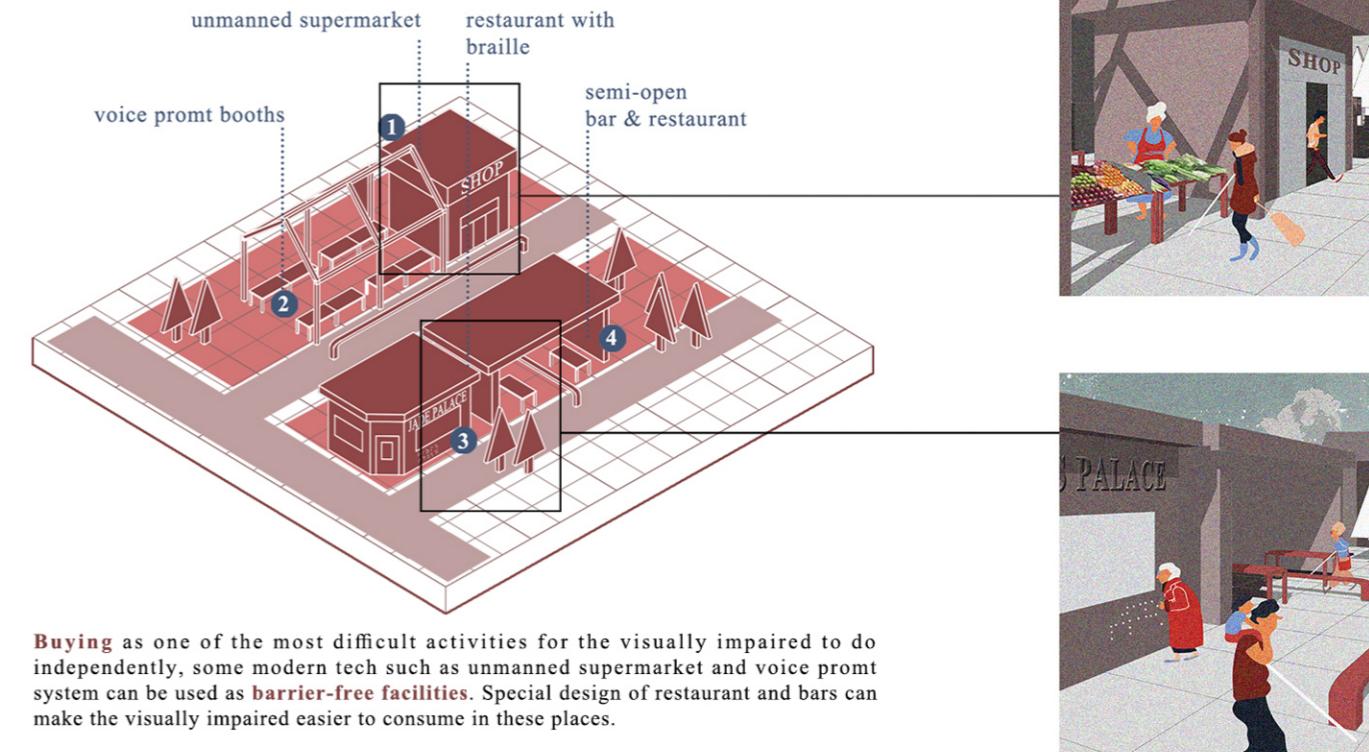
### Scenario 2: Barrier-free dwelling facilities



Voice prompt system enables the visually impaired to find their home more easily. Ramp with handrail and external elevator perform as a safer system. Trees as sound insulation cut off the noise from outside of the community. This four kinds of facilities together forms a **more friendly dwelling situation** for the visually impaired.

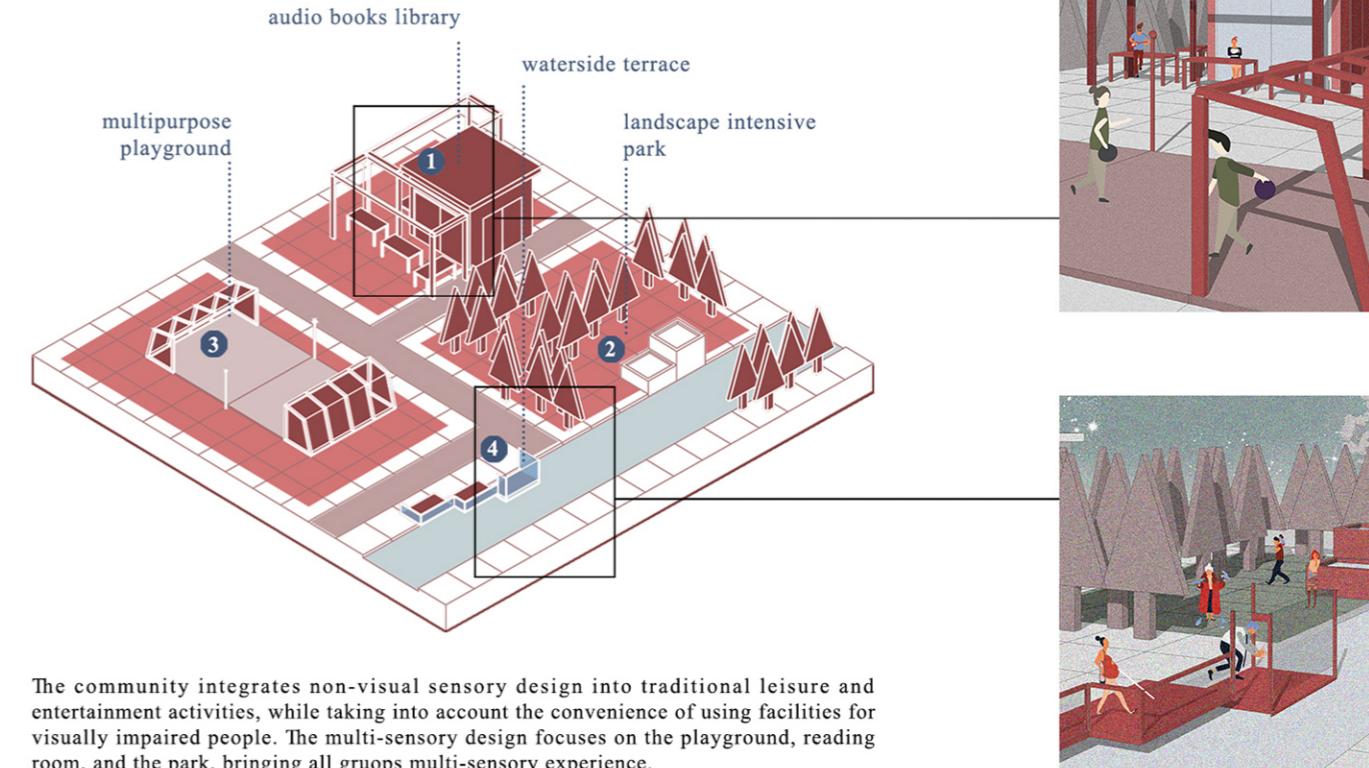


### Scenario 3: Barrier-free retail facilities



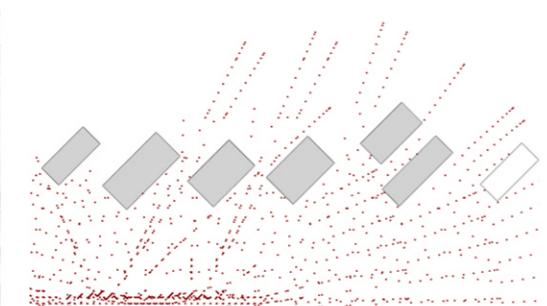
**Buying** as one of the most difficult activities for the visually impaired to do independently, some modern tech such as unmanned supermarket and voice prompt system can be used as **barrier-free facilities**. Special design of restaurant and bars can make the visually impaired easier to consume in these places.

### Scenario 4: Multi-sensory leisure facilities

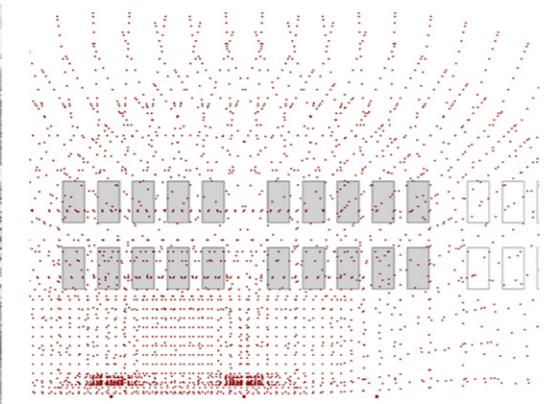


The community integrates non-visual sensory design into traditional leisure and entertainment activities, while taking into account the convenience of using facilities for visually impaired people. The multi-sensory design focuses on the playground, reading room, and the park, bringing all groups multi-sensory experience.

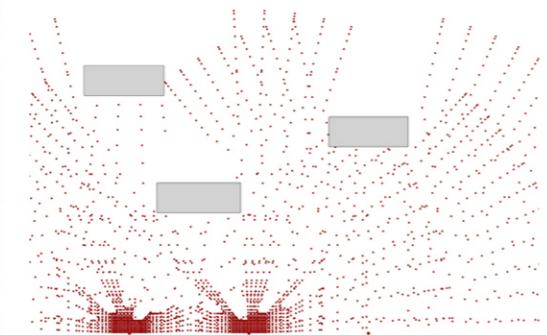
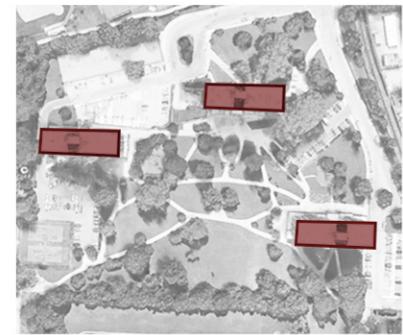
## Grasshopper Acoustic Simulation



8 Floors / Medium Density



3 Floors / Very High Density



18 Floors / Very Low Density

3 residential patterns in Philadelphia are extracted. The acoustic simulation results shows that an 8 floors, medium density pattern can furthest minimize the impact of outside noise on the interior of the community. Therefore, this pattern is chose in the community design.

A relatively empty site in Manayunk Town is selected as the construction pilot and those examples is applied in it.



In the center of the community is a large public space, and each apartment building has its own relatively private public space.



Public Space: One axis & Multiple points

## Function Analysis

