User Interview Study on Transportation Preference for the Visually Impaired

Participant demographics:

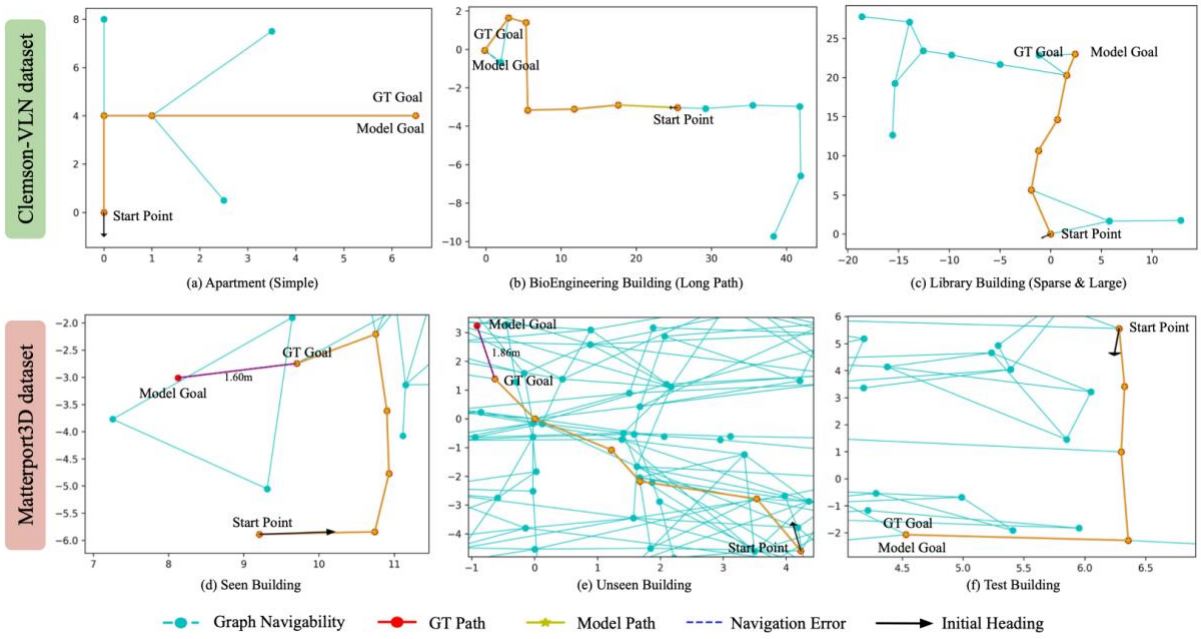
Participant	*Age*	*Gender*	*Vision lost at an early age or since birth?*	*Vision in right eye*	*Vision in left eye*
1	64	F	No	No	Full
2	73	F	No	Partial	Partial
3	32	M	No	No	No
4	56	F	No	Partial	No
5	77	F	No	Partial	Partial
6	46	F	Yes	No	No
7	58	M	Yes	No	Partial
8	49	M	Yes	No	No
9	69	M	No	Partial	Partial
10	51	F	No	No	No

Survey data from the user interviews:

	Participants with partial vision in at least one eye						Participants who are blind in both eyes				Minimum score	Average score	Standard deviation	Maximum score
Daytime	0	0	0	5	1	0	0	3	10		0	2.1	3.4	10
Wind gust	0	0	1	0	8	8	0	2	0	5	0	2.4	3.3	8
Rain	0	0	10	0	1	0	0	8	0	9	0	2.8	4.3	10
Plants and bushes	2	0	0	2	7	10	0	6	0	7	0	3.4	3.7	10
Trees	2	0	0	2	10	1	0	7	10	4	0	3.6	4.0	10
Wet surfaces	0	7	9	1	6	9	0	5	0	8	0	4.5	3.9	9
Pets	5	10	0	9	4	0	0	8	10	7	0	5.3	4.1	10
Crossing the road, traffic lights with traffic in the daytime			2	10	2	8		4		6	2	5.3	3.3	10
Other moving pedestrains	10	0	1		3	10	0	8	10	8	0	5.6	4.5	10
Potholes	3	1	3	10	10	10	0	3	10	8	0	5.8	4.2	10
Electric cars that are quiet	0	5	7	5	10	10	0	9	10	10	0	6.6	4.0	10
Curbs	3	10	8	9	10	10	5	2	10	4	2	7.1	3.2	10
Snow	5	0	10	8	8	9	5	9	10	8	0	7.2	3.1	10
Nightime	10	0	10	8	10	8	4		10		0	7.5	3.7	10
Uneven Landscaping	2		4	9	8	10	6	9	10	10	2	7.6	2.9	10
Crossing the road, no traffic lights with traffic in the daytime		10	5	10	9	10	10	4		8	4	8.3	2.4	10
Crossing the road, traffic lights with traffic at night		10	10	10	10	10		7		7	7	9.1	1.5	10
Crossing the road, no traffic lights with traffic at night		10	10	10	10	10		7		9	7	9.4	1.1	10
Minimum score	0	0	0	0	1	0	0	2	0	4				
Average score	3.0	3.9	5.0	6.4	7.1	7.4	2.0	5.9	7.1	7.4				
Standard deviation	3.4	4.7	4.2	3.9	3.4	4.0	3.2	2.5	4.7	1.9				
Maximum score	10	10	10	10	10	10	10	9	10	10				

Assistive Navigation Technology Validation Result Data

Effectiveness of the model on the Clemson-VLN and Matterport3D datasets:



Success rate (SR) using different instruction style:

	Clemson-VLN Dataset	Matterport3D Dataset
Direction-based	40.00%	58.33%
Heuristic-based	40.00%	60.71%
Detail-based	34.48%	48.15%

Success rate (SR) using different navigation length (unit: meter):

	Clemson-VLN dataset	Matterport3D dataset
$0 < L \leq 15m$	60.0%	85.7%
$15m < L \leq 30m$	22.2%	50.0%
$30m < L$	16.7%	0.0%