

TRR-10-Requirements

Team Members		Joseph Yu, Tarun Eswar, Charles Tang, Nevin Thinagar								
Problem/Need		Dementia, ADHD, and various other cognitive impairments often cause forgetfulness in the elderly population, especially in short-term memory function, and further cause a greater number of misplaced items.								
#	Level	Requirement Type	Requirement Statement	Rover Design (Proposed)	Image Recognition (ImageNet)	Mobile Application	Rover Hardware	Prototype #1 (Low Camera Mount)	Prototype #2 (Higher Camera Mount)	Prototype #3 (Final)
1	1	Functional	The device shall identify the locations of items within an area with at least 50% accuracy.	Yes	Yes	N/A	N/A	No	Yes	Yes
2	1	Functional	The device shall reduce the frequency of searching for lost items by at least 50%.	Yes	Yes	N/A	N/A	No	No	Yes
3	1	Functional	The device shall respond to client requests for misplaced items within 10 seconds.	Yes	N/A	Yes	N/A	Yes	Yes	Yes
4	1	Safety	The device shall not cause injury to the client(s).	Yes	Yes	N/A	Yes	Yes	Yes	Yes
5	2	Safety	The device shall not significantly impede the ability of the client to navigate their house.	Maybe	Yes	N/A	Yes	Yes	No	Yes
6	2	Functional	The device shall conduct searches at least once a day.	Yes	Yes	N/A	N/A	No	No	No
7	2	Cost	The device shall not be greater than a total of \$300.00 in cost.	Yes	Yes	Maybe	Yes	Yes	Yes	Yes
8	2	Functional	The device shall sustain movement and data collection for at least 30 minutes.	Yes	N/A	N/A	Maybe	No	Yes	Yes
9	2	Functional	The device shall accept commands from natural language	Maybe	N/A	Yes	N/A	No	Yes	Yes
10	2	Physical	The output device should be secured properly.	Yes	Yes	N/A	Yes	N/A	N/A	Yes
11	2	Appearance	The user interface should be aesthetically pleasing.	Yes	Yes	Yes	Maybe	No	No	Yes
12	2	Functional	The device shall not store recordings for more than 10 minutes.	Yes	Yes	Maybe	Yes	Yes	Yes	Yes
13	2	Physical	The device shall not take more than 1 cubic yard of space.	Maybe	Yes	N/A	No	Yes	Yes	Yes
14	2	Functional	The device shall not cause damage to any property on the household.	Yes	Yes	N/A	Maybe	No	No	No
15	2	Appearance	The device should have a display for showing lost items.	Yes	No	Yes	N/A	Yes	Yes	Yes
16	2	Functional	The device shall not capture unauthorized media of any private property without explicit permission by the client.	Yes	No	Yes	N/A	No	Yes	Yes
17	2	User	The user shall be able to use a basic application on a mobile phone or computer.	Yes	N/A	Maybe	N/A	Yes	Yes	Yes
18	2	User	The user shall be able to pick up the device.	Maybe	N/A	N/A	Yes	Yes	Yes	Yes
19	2	Physical	The device shall be less than 10 pounds.	Maybe	N/A	N/A	Yes	Yes	Yes	Yes
20	2	Documentation	The device shall include a training manual.	Yes	N/A	N/A	No	No	No	No
21	3	Physical	The device shall be able to maintain functionality autonomously	Yes	Yes	N/A	Maybe	Yes	Yes	Yes
22	3	Functional	The device shall have a product lifespan of at least 1 year.	Yes	Yes	Maybe	Maybe	Yes	Yes	Yes
23	3	Functional	The device shall report any unresolvable errors to the client	Yes	Maybe	Maybe	Maybe	No	No	Yes
24	3	Physical	The device shall not obstruct the view of the client.	Maybe	N/A	N/A	Yes	Yes	Yes	Yes
25	3	Functional	The output should be customizable to suit the client.	Maybe	No	N/A	No	No	No	No
26	3	Cost	The cost of maintenance and upkeep should be less than \$100.00 per year.	Maybe	Yes	Yes	Yes	No	Yes	Yes
27	3	Physical	The device shall have a strap for carrying.	Yes	N/A	N/A	No	No	No	No
28	3	Physical	The device shall be aesthetically pleasing.	Yes	N/A	N/A	Yes	No	No	No
29	3	Physical	The charging port shall be grounded and secure.	Yes	N/A	N/A	Yes	No	Yes	Yes
30	3	User	The user shall be able to navigate their house and avoid the device in motion.	Yes	N/A	N/A	Maybe	No	No	No
31	3	Documentation	The device shall have a software API.	Yes	Yes	Yes	Yes	No	Yes	Yes