



BACK ON TRACK

Improving the lives of people with dementia and multiple sclerosis

Team: BACK ON TRACK

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PROBLEM



- ▶ Three out of five people with Alzheimer's Disease will wander [1]
- ▶ This leads to potential dangers and worry for caregivers





CURRENT BENCHMARKS



- ▶ Project Lifesaver
 - \$624 for tracking wristwatch [2]
 - Expensive
- ▶ GPS SmartSole
 - \$365 per year
 - GPS tracker in shoe sole [3]
 - Constant tracking is disliked by people
- ▶ Comfort Zone Check-In
 - Developed by Alzheimer's Association
 - Only compatible with Sprint phones through text or email

Less cost



On/Off
tracking



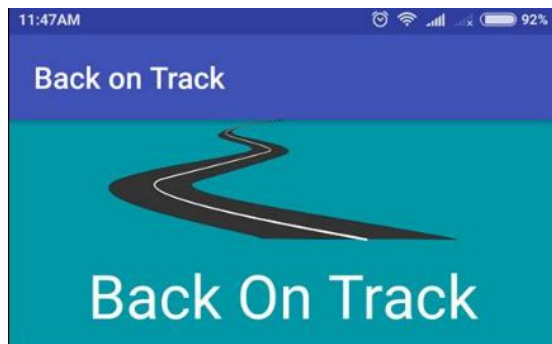
Easily
Accessible



Our App:
BACK ON
TRACK



Features



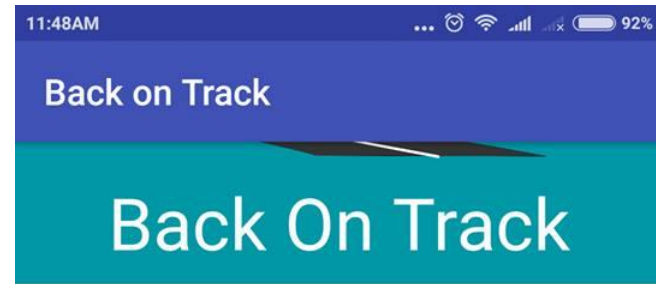
Please connect to a device!

Enter Device Name

CONTINUE TO APP

Prompts caregiver to connect to a device





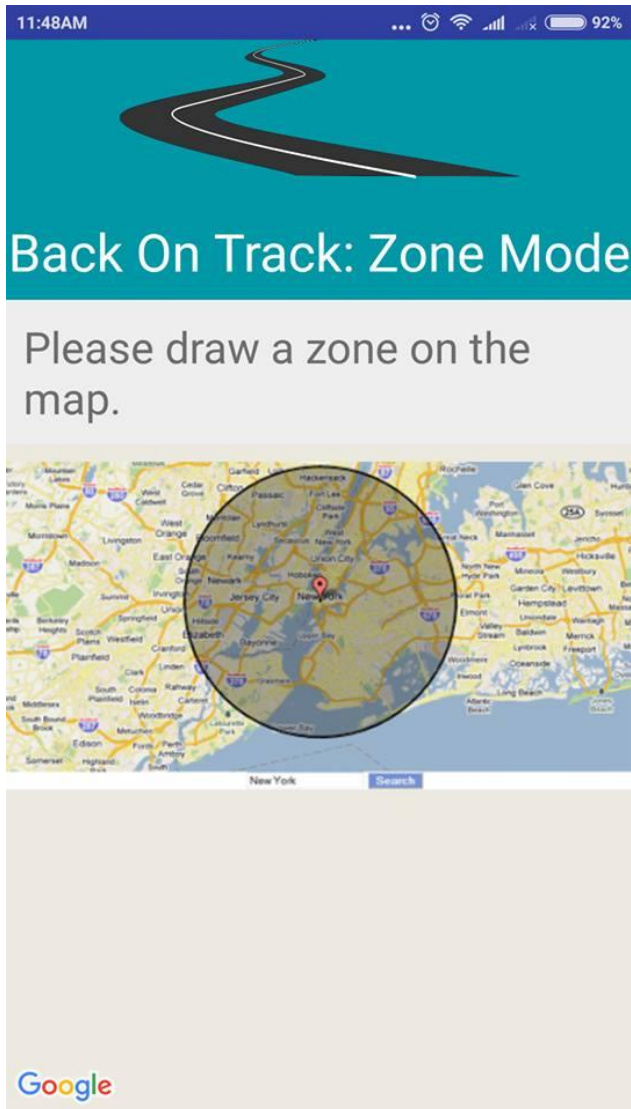
Welcome! Please select a mode.

Selection of modes

ZONE MODE

PATH MODE

VIEW MAP

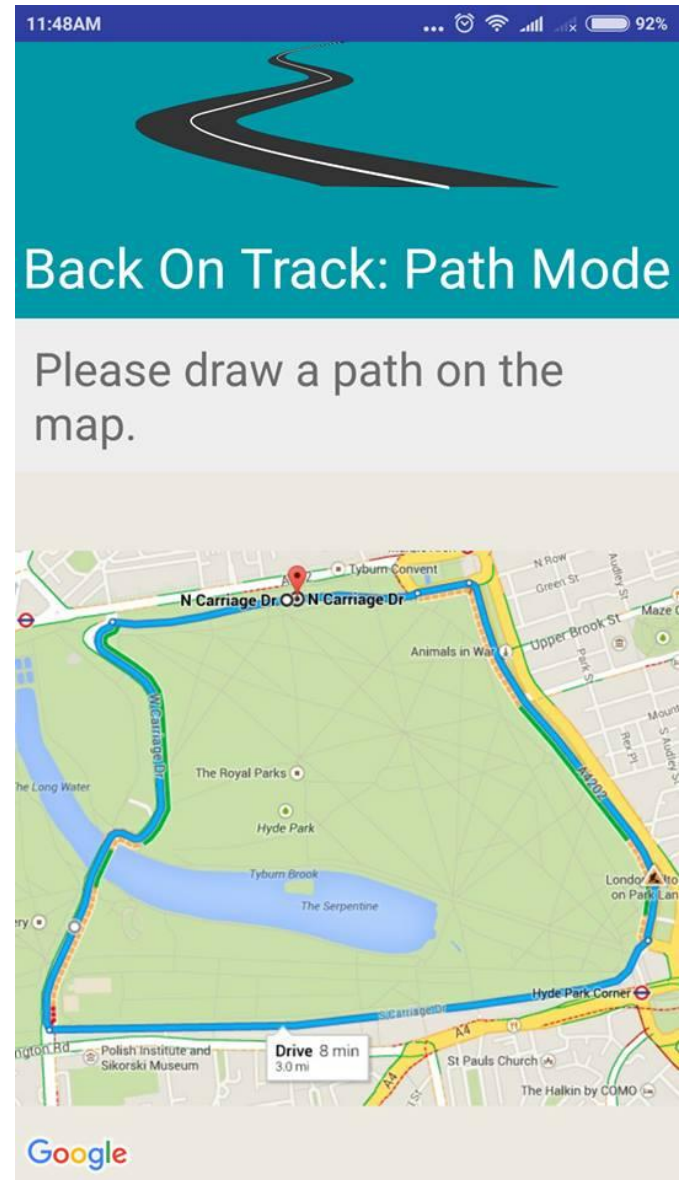


Zone Mode

- Allows caregiver or user to set a safe zone

Path Mode

- Allows user or caregiver to define a path



11:48AM

... [signal icons] 92%



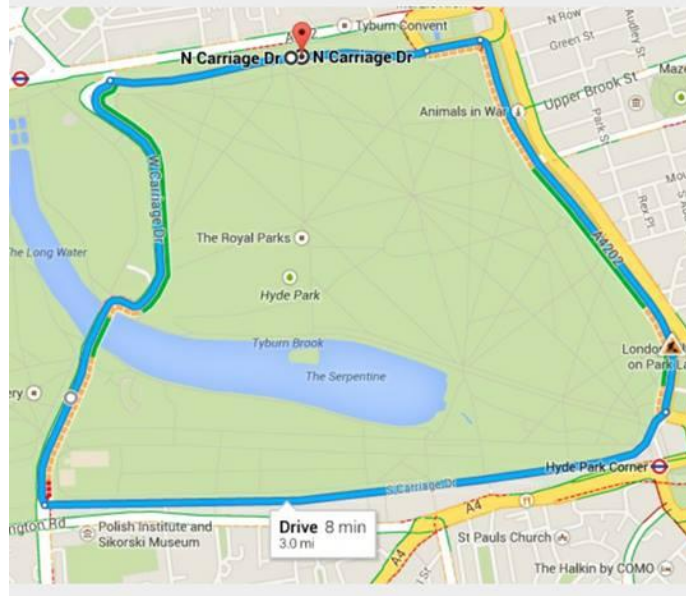
Back On Track: View Mode



Google



ALERT YOUR PATIENT IS WANDERING!



Drive 8 min
3.0 mi

User Posts

Bertha: What many don't know about Multiple Sclerosis is the fear of telling people. I was only 30 when I was diagnosed, and no one at my work would've believed me if I had told them. They attributed my fatigue to sleeping too late and "partying" which was completely not true. I felt so hopeless and didn't know who I could talk to. I hope I can use this website to connect with other people like me, and work together to spread awareness on how subtle the effects of MS can be.

Mark: The Back on Track application has saved me so many times. My entire life I've gone on the same neighbourhood walk, but after I was diagnosed with Dementia, I kept getting lost and forgetting where I was going. I even forgot that I could check my phone. Luckily, after straying too far away from my set path, my phone would alert me and instantly get me back onto my usual path. Thank you.

Hack4Health 2016 Project

Developed by Jerry Liu, Austin Atmaja, Haebin Jung, Howard Yu, David Zhang, Melissa Liu





CURRENT BENCHMARKS



▶ Medication

- Dimethyl Fumarate (Tecfidera)
→ Weakens immune system, increases vulnerability to disease

▶ Exercise

- Yoga, stretching
→ Not possible for all patients, especially those with leg mobility issues





Our Solution



- ▶ We propose a medical patch containing essential chemicals and materials to improve muscle signaling
- ▶ User centred – no pain , and dosage will be customized based on current signal reading
- ▶ Ions to improve electrical conductivity, chemicals to prevent T-cells from attacking Myelin Sheath





References



- [1] Alzheimer's Association, "Three out of Five people with Alzheimer's disease will wander," 2016. [Online]. Available: http://www.alz.org/norcal/in_my_community_18411.asp. Accessed: Nov. 5, 2016.
- [2] "Project Lifesaver international," in *Project Lifesaver*, 2016. [Online]. Available: <http://www.projectlifesaver.org/>. Accessed: Nov. 5, 2016.
- [3] SafeTracks GPS Canada Inc, "Personal monitoring products," in *SafeTracks GPS Canada*, 2014. [Online]. Available: http://safetracksgps.ca/site/our_products?cat=5&details=11. Accessed: Nov. 5, 2016.
- [4] Alzheimer's Association, "Comfort Zone," 2016. [Online]. Available: http://www.alz.org/cleveland/in_my_community_59702.asp. Accessed: Nov. 5, 2016.
- [5] A. Kalpana S Paudel, "Challenges and opportunities in dermal/transdermal delivery", PubMed Central (PMC), 2016. [Online]. Available: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2995530/>. [Accessed: 06- Nov- 2016].
- [6] A. Kalpana S Paudel, "Challenges and opportunities in dermal/transdermal delivery", PubMed Central (PMC), 2016. [Online]. Available: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2995530/>. [Accessed: 06- Nov- 2016].
- [7] L. Gray, "Multiple sclerosis study reveals how killer T cells learn to recognize nerve fiber insulators | UW Today", *Washington.edu*, 2016. [Online]. Available: <http://www.washington.edu/news/2013/01/10/multiple-sclerosis-study-reveals-how-killer-t-cells-learn-to-recognize-nerve-fiber-insulators/>. [Accessed: 06- Nov- 2016].