

Hey Google, Look Both Ways: A New App Can Assist Blind and Visually Impaired Pedestrians at Intersections.

BY MARYKATE FENSTERMAKER

FOR PEOPLE WITH vision impairments, crossing the street in urban environments poses a huge risk. Most intersections do not have audible crossing signals, and if they do, it is hard to hear during rush hour traffic. A pedestrian who cannot see a blinking countdown across the street could face life threatening consequences. However, a new smartphone app could change everything. The app, PedNav, assists in crossing signalized and unsignalized intersections by retrieving traffic signal data and bringing it right to your phone. In just two taps, a phone can visually and audibly guide a pedestrian through an intersection.

Together, the University of Minnesota Department of Mechanical Engineering and the Minnesota Department of Transportation (MNDOT) utilized modern technology to benefit blind and visually impaired pedestrians. The app is shown to be 95 percent effective following tests at six busy intersections in downtown Stillwater.

Dr. Liao is a Senior Research Associate at the U and a lead researcher for the project. In the “StarTribune” article on PedNav, Liao describes the app in two taps. The first tap gets a location and information about the intersection (i.e. heading north to cross Concordia Avenue, two lanes, ten seconds to cross) Another tap retrieves the live traffic control signal from the Bluetooth Low Energy beacons installed at the intersection. The information is then presented on your smartphone as visual icons like a green man showing it is safe to cross with a vibration and an audible countdown, or a red hand when traffic is moving.

“Can I make it, or should I stop? Do I have sufficient time to cross?” Liao emphasizes the importance of time information when crossing at a crosswalk. PedNav uses a

Message Queuing Telemetry Transport (MQTT) interface to get real-time data without any lag because even a few seconds can mean a difference between safety and danger. Stephen Letnes is legally blind and lives in Minneapolis. Regarding PedNav, he says “I am all about it, I love it,” especially because “I personally have a little extra anxiety when crossing streets because I have been hit by traffic before.”

The only downside of the innovative technology is that it excludes an entire community with visual impairment. According to the American Foundation for the Blind, 15 percent of seniors suffer from vision loss and many more suffer from age-related vision problems. Additionally, 40 percent of seniors do not use smartphones, yet PedNav requires technological proficiency. Whether it’s downloading the app, turning on Bluetooth, or allowing access to the device’s location, smartphone usage is a skillset many seniors lack. Elderly pedestrians are less likely to have a smartphone, but they are more likely to suffer from vision issues. Nonetheless, PedNav is still in development and alterations can be made.

PedNav is the first ever app to assist blind and visually impaired pedestrians for this purpose. The goal was to “develop more accessible traffic information for people who are visually impaired, thus improving their mobility and independence in using the transportation system” says Liao. As the app awaits validation, MNDOT says that developers are working on implementation strategies such as guidelines for wireless traffic data communication and creating digital maps that include sidewalks and work zones. When the app does reach the public, it will set forth a new era of technologically resourceful mobility solutions for the disabled.

*CONTENT WARNING: DEATH/DYING, VIOLENCE

Dyatlov Pass Incident: Murder or Nature?

BY ERIKA SOUKUP

IN FEBRUARY 1959, nine hikers set out for a skiing expedition. They never returned. When they were a week overdue to arrival at their destination, a rescue operation was set in motion. Their bodies and tent were found on Dyatlov Pass in shocking conditions. “Two of the men were found barefoot and clad only in their underwear. While the majority of the group appeared to have died of hypothermia, at least four had sustained horrific—and inexplicable—injuries, including a fractured skull, broken ribs and a gaping gash to the head. One woman, 20-year-old Lyudmila Dubinina, was missing both her eyeballs and her tongue,” documents later obtained by “The St. Petersburg Times” said. There were also traces of radioactivity on their clothes. According to Earth Sky, the searchers found the skiers scattered downhill from the campsite. Some were near the tree line in their underwear around the remains of a fire. Some were found deceased in apparent attempts to return to camp. The last members to be discovered were farther in the woods and down a ravine.

With the questionable and odd findings, it’s no wonder that the Dyatlov Pass Incident is one of the most enduring and well-known mysteries, causing many conspiracy theories. The most popular of these are a military cover up, radiation fallout, or an abominable snowman attack. One of the most probable theories is that a massive avalanche swept through the camp. The hikers had set up their tent on a hill without realizing it was approximately 30 degrees, which is the minimum incline needed for an avalanche to start. However, there was no snowfall on the night of February 11 that could have triggered an avalanche, and typically the victims of an avalanche asphyxiate, which is different from the blunt force trauma-like injuries of these hikers.

“The Insider” reports that when Johan Gaume, head of Snow Avalanche Simulation Laboratory, a Swiss federal technical institute, watched the Disney movie “Frozen” and saw how well the movement of the snow was depicted in the movie, he thought that could finally confirm if it was an avalanche that was the cause of the Dyatlov Pass incident. Gaume traveled to Hollywood to meet with the specialists who worked on the “Frozen” snow effects; they modified the film’s snow animation to stimulate the impact an avalanche would have on the bodies of the hikers. The simulation led to the discovery that a block of snow from an avalanche could easily break ribs or the skulls of humans.

Armed with this data and combined with the data from cadaver tests conducted in the 1970s by General Motors focused on the effect on the human body when struck at different speeds, the researchers were enabled to show that heavy blocks of solid snow could have landed on the hikers as they slept, crushing their bones and causing injuries not typically associated with avalanches. If this was the case, those who had sustained less serious blows likely dragged their injured companions out of the tent in hopes of saving their lives, “Smithsonian Magazine” reports.

There is still quite a bit of controversy as there are still many unanswered questions. Why would the hikers leave their tent without their clothes (essentially suicide in the environment and weather)? Why was there a presence of slight radiation? However, “Live Science” states, “When [the hikers] decided to go to the forest, they took care of their injured friends — no one was left behind... I think it is a great story of courage and friendship in the face of a brutal force of nature.”