

Riding public transit can be a gamble for people with disabilities. This Philly-born app makes it easier

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unlockphilly



UNLOCKED
MAPS

At the moment his life changed forever, Ather Sharif was sleeping in the backseat of a southbound car on a wintry North Dakota highway. It was

March 2013, somewhere between Grand Forks and Fargo.

"It was nowhere," said Sharif, 33, a [software developer](#) from Pakistan who was studying for a master's degree at the University of North Dakota at the time. "What I was told is there were icy roads and that it was a bad break, a slip of the tires. That was it, nothing dramatic."

He woke up paralyzed. Within a few weeks, Sharif was loaded into an air ambulance and flown to Magee Rehabilitation Hospital in Philadelphia—to begin again. He learned to use a wheelchair and found his mission.

Late last month, Sharif won an international award for developing UnLockedMaps, a web-based program born in Philadelphia's civic hacker community that allows users to see, in real time, how accessible rail [transit](#) stations are in six metro areas.

About 20% of transit stations in the United States do not have elevators or ramps, according to the Federal Transit Administration—32 years after the Americans with Disabilities Act guaranteed equal access to public transportation.

For SEPTA, the picture is worse: 50% of rail transit and Regional Rail stations are accessible, according to an agency status report from last December. And 11 of Camden-based PATCO's 13 stations have elevator service.

From hack-athon to international acclaim

Unlocked, and Sharif's mission, began when he volunteered for a 2014 hack-athon to develop programs to help people with disabilities navigate Philadelphia, organized by James Tyack, who was then creating an app to track SEPTA elevator outages. Sharif teamed up with Tyack to work

on it and later founded nonprofit EvoXLabs with others to work on accessible tech projects, while recovering and earning a master's in computer science at St. Joseph's University.

Now based in Seattle, where he's a Comcast engineer and a doctoral student at University of Washington, Sharif and his collaborators, a group of UW undergrads, collected elevator outage data from more than 2,300 transit stations in Philadelphia, Chicago, Seattle, Toronto, New York and the California Bay Area over the last 28 months to build UnlockedMaps.

The team formed a panel of transit users that included people who don't use wheelchairs to test the tool.

Lack of ramps and elevators at transit stations, and other things such as platform gaps, also present problems for [elderly people](#) with mobility issues, as well as those pushing strollers, wrangling toddlers, carrying packages or heavy backpacks and luggage—plus commuters carrying bicycles aboard trains or work tools and equipment.

After demonstrating UnlockedMaps on Oct. 24 to the ASSETS 2022 Conference on Computers and Accessibility in Athens, Sharif and the UW group won an award for "best artifact" from the academic meeting, which is selective about accepting research projects.

Mixed access on SEPTA

An estimated 25% of Americans have a disability that affects their travel, according to the U.S. Department of Transportation. And 16% of Philadelphians—about 240,000 people—had a disability of some kind in 2016 based on census survey data, according to Pew's Philadelphia Research and Policy Initiative. That was the [highest rate](#) among the nation's 10 [largest cities](#), the think tank said.

Accessibility varied among SEPTA rail services, said an authority status report issued last December. It ranged from a low of 27% of stations on the Norristown High Speed Line, to 89% of those along the Market-Frankford Line, which carried 62.7 million passengers in 2019. Twelve of the Broad Street Line's 25 stations were accessible.

By contrast, just 27% of stations on New York's massive subway system have ramps or elevators.

SEPTA has taken some steps to pick up the pace of [station](#) renovations, hoping for help from the \$1.2 trillion infrastructure act, which includes the largest federal investment in public transit construction after years of treading water.

The authority recently began construction to bring the Susquehanna-Dauphin and Tasker-Morris stations on the Broad Street Line into compliance with the ADA.

It has also speeded up planned capital investments to begin fixing nine Broad Street Line stations, said SEPTA spokesman Andrew Busch. They are the Chinatown, Ellsworth-Federal, Fairmount (including the Chinatown spur), Hunting Park, Logan, Lombard-South, Snyder and Wyoming stations and should begin this fiscal year.

SEPTA's buses and much of the rail fleet are accessible, with the exception of the early '80s Kawasaki trolley cars that run in the city and Delaware County, officials said. The agency is pursuing a plan to modernize the streetcar network with ADA-compliant vehicles.

'A long journey with SEPTA'

A \$1.75 billion cache of money to make transit stations accessible was added to the federal infrastructure act last year, decades after disability

rights advocates demanding wheelchair lifts on buses helped build support for the ADA.

Sen. Tammy Duckworth (D., Ill.), who lost both legs in Iraq as a U.S. Army combat helicopter pilot and uses a wheelchair, pushed the new program.

"It's just crazy what persons with disabilities go through, just to try and get to work or school or shopping," Duckworth said last year after the infrastructure bill was signed at the White House.

She attended an event several years earlier to launch a Chicago Transit Authority plan to remodel its remaining inaccessible El train stations and was shocked when officials told her it could take until 2038.

By then, "you're talking about a half-century that people with disabilities have been waiting," Duckworth said in an interview with the Washington Post.

Often, transit agencies with old infrastructure have had to defer ADA work in favor of safety-related construction projects. Duckworth said the grant program is aimed at helping them make progress without having to sacrifice other critical investments.

In early October, SEPTA applied for \$45.36 million from the program for ADA construction on six subway stations, Busch said.

"It's been a long journey with SEPTA," said Thomas Earle, the CEO of Liberty Resources Inc., the federally funded regional independent-living agency for people with disabilities. He noted that a key part of the ADA is the requirement for "community integration" of people with disabilities, which includes the chance to use the same transit system as everyone else.

"They've made a lot of progress, and we appreciate it, but there are a lot of challenges ahead and improvements needed, like any major transit system," Earle said.

Up next: Asian transit systems

Lying in bed at Magee nearly a decade ago, Ather at first wondered whether he'd ever be able to work in tech at all. His spinal cord injury did not allow him to move all his fingers much, which made typing hard.

He practiced using a stylus wrapped around his hands and, essentially, bashed the keyboard. "I just wanted to kind of like type like a quote unquote, normal person," Sharif said. "So then I threw that in the trash, and started to work on typing with my thumbs only."

It took a year but he got up to 40 words per minute with that method.

Austin Seraphin, a software developer in South Philadelphia who has been blind since birth, worked with Sharif on several projects, including EvoXLabs. He's proud of, but not surprised at, his friend's accomplishments.

"I started following what he was doing, because he was making some waves in the area," Seraphin said. He remembered Sharif developing a JavaScript that could read data-visualization charts for people who are blind or have visual impairments. "He broke ground on that."

Sharif is in Seattle now, where the other major focus of his research is using computing power so blind and visually impaired people can interact with data visualizations. And UnlockedMaps is tackling the Tokyo, Seoul and Washington transit systems next.

"I call Philly my home because that's where I consider my new life to

have started," he said.

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