

WPI students help Audio Journal listeners connect by developing first phone app

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A small team of Worcester Polytechnic Institute students, guided by their academic advisers and advice from the community, has developed the first iOS phone app for Audio Journal.

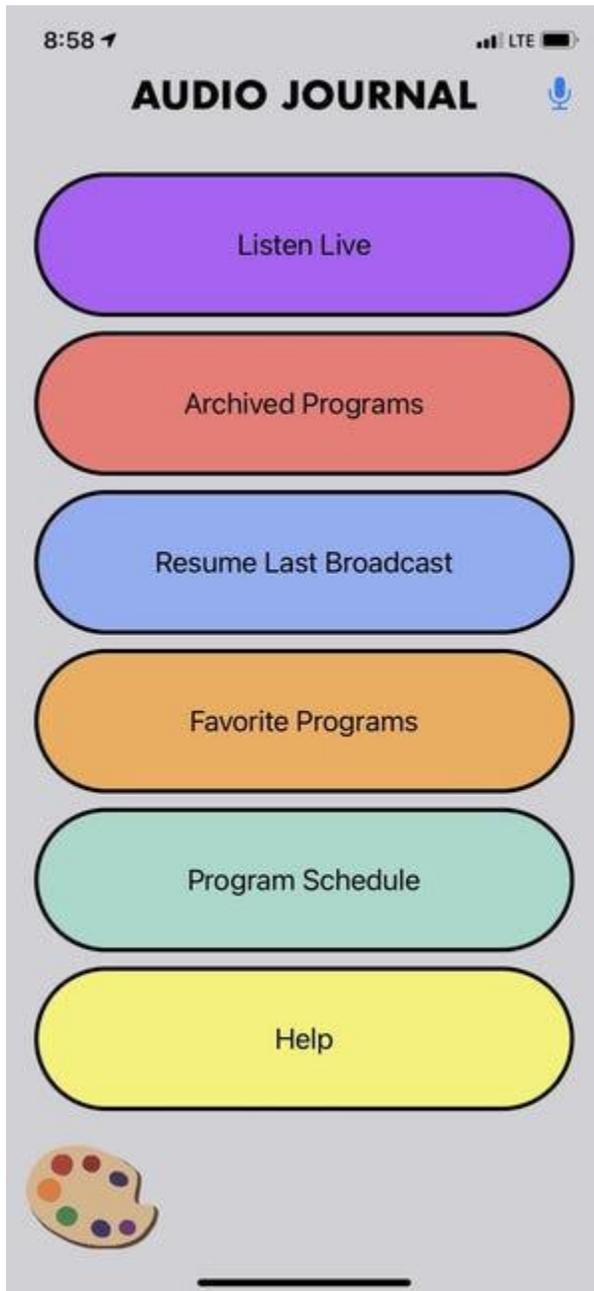
It's got people talking, and listening.

The Worcester-based nonprofit Audio Journal is a radio service for the blind, visually impaired, or individuals otherwise unable to read print or visual materials — as well as people who may just like its programming.

"Wonderful," said Mary Frandsen, Audio Journal executive director, about the response to the app. When people who had been testing the new app for the Audio Journal were asked if they would use it again, 100 percent said yes. Access time to broadcasts using the app has been cut from five minutes to one minute. It is now available to anyone at no cost on Apple's app store.

With the app, listeners can listen live, listen to archived programming, identify favorite programs, and view the program schedule. Features are a simple screen design, dynamic type, the ability to search for programs by voice, and help menus.

"It's kind of great seeing it come to fruition," said WPI student and Audio Journal app team member Ryan Doyle.



"Seeing the app come out, and seeing it in the app store, it's a great feeling. Doing it for such a great organization as Audio Journal, this is definitely my highlight of my time at WPI," Doyle said.

Relying on volunteers, Audio Journal's programs range from the reading of local newspapers to topical and cultural broadcasts, many of them locally produced and presented. One, "Speaking Volumes," a book discussion program, has been featured in The Oprah Magazine. Audio Journal

also shares programming with other radio reading services so that it is on the air 24 hours a day, seven days a week, from its office and recording production studio at 799 West Boylston St.

However, Frandsen was interested in improving access for listeners, including Audio Journal's broadcast and archive programs. Most listeners either tune into Audio Journal on its website (www.audiojournal.org), a special receiver, smart speaker or via local public access cable TV channels.

Frandsen said she had heard of WPI working with nonprofit organizations, and got in touch with the university in May 2019.

WPI has a Community Project Program, and its academic program includes having students work on projects.



Frandsen spoke with Laura Roberts, director of the Worcester Community Project Center at WPI.

For their Interactive Qualifying Project, students Doyle, Irakli Grigolia and Brendan Marion decided to work as a team with the Audio Journal. Frandsen gave them a tour of the facility, and in January 2020, they started on the project.

Besides Frandsen, among others they talked with was David Dunham assistive technology coordinator for the the Massachusetts Association for the Blind and Visually Impaired. The team also did a survey.

"This was the first iteration of the project. At this point, we didn't know we were working on an app. We were looking for access for the blind and visually impaired," Doyle said.

Surveying blind and visually impaired participants, the team learned "most of them use smart phones," Doyle said. The team started developing a prototype of what would be best for an app.

Dunham, who is visually impaired, said some important points were to keep the app simple, and make the buttons and text easy to see.

"The simpler you make it the better it's gonna be, not just for the blind and visually impaired but for everyone else," Dunham said.

Doyle said that the team determined that an "iPhone app would be the best platform." The app could utilize some helpful features for the project that are already built into iPhones, such as VoiceOver, which gives audible descriptions of what's on the screen.

That concluded work on the Interactive Qualifying Project in March 2020, but Doyle said he felt "I'd love to continue on."

Doyle and Grigolia met with Rodica Neamtu, associate teaching professor/associate professor of computer science, to discuss actually creating a workable Audio Journal app for their Major Qualifying Project.

"Ryan (Doyle) came to me and I checked it out and actually got really excited to help them continue on this journey that they had started on," Neamtu said.

But as might be suggested by the title "Major Quality Project," this was going to be a major project for Doyle and Grigolia.

"I thought it was going to be a little more work than two people could handle," Neamtu said. So Neamtu asked student Kyria Nelson if she would be interested in getting involved with the project. Neamtu also asked WPI assistant professor of computer science Lane Harrison to join her as an advisor.

"I realized that this was going to be something bigger than creating a nice app," Neamtu said.

"I met Mary (Frandsen), and she was very excited to know we were taking this on. She provided invaluable feedback for us through the entire project," Neamtu said.

Frandsen gave Nelson a tour of Audio Journal, although by this time the pandemic was underway.

"For me, I would say I was aware I was making an app for Audio Journal, but I don't think it really hit me until I safely visited Audio Journal. This is an ongoing organization helping people every day," Nelson said.



Frandsen said Doyle, Grigolia and Nelson's enthusiasm was such that they got on the project in the summer of 2020 before WPI had resumed classes. Grigolia and Nelson are computer science majors, while Doyle is a major in interactive media and game development technology.

"It's people from different disciplines working together for one team," Doyle said. Furthermore, "Working with people outside the group like Mary (Frandsen) was really an eye-opening experience."

Meanwhile, Dunham helped with having people test the app as it was being developed and give feedback.

"Accessibility is a more important topic in the past few years. What does a particular organization need?" said Harrison.

Testing out the app "led to a decent amount of insight and underscores the importance of listening to end users and engaging them in the design process," he said.

"To get feedback and take that into account with the app — it was a great luxury to have that testing," Doyle said.

The project normally have been undertaken face-to-face, Neamtu noted. "The fact that the project was developed remotely, it's really a testament to the hard work and drive. This had been harder than it would normally have been because of the circumstances," she said.

Doyle said the goal was to create an app that was simple, intuitive and usable.

The app has buttons for "Listen Live," "Archival Programs," "Resume Last Broadcast," "Favorite Programs," "Program Schedule," and "Help." There is also a color palate changer so people can adjust colors to what would be preferable to them.

Complementing VoiceOver, the team developed a voice control feature allowing the user to say the name of the program they want to listen to along with other applications.

"It's very user-friendly. It works very well," Dunham said.

"Some of the feedback was make sure the layout of the buttons was consistent and the app was simple. You need a simple set of categories and a simple search — 'search for newspaper reading,' 'listen to audio book,'" Dunham said.

In a Zoom teleconference/interview, Dunham told the team, "This is a very concise app that works very well. It's easy to see. It jumps out at you. I love it. I think you did a great job."

The project itself was no simple matter. "There were a lot of bugs to fix," Doyle said.

But on March 12 the app was submitted to the App Store for approval, and it was approved less than two days later.

"It feels real good," said Grigolia.

Doyle, Nelson and Grigolia are on schedule to graduate from WPI in May.

"It worked out well. I got a lot of experience. At WPI I learned to be adaptable," Doyle said.

"Audio Journal would not have the resources to hire a commercial app developer, and we are so grateful to WPI for their work in the community," Frandsen said. "The app will help move Audio Journal into the future. People typically lose their sight as they age so new and future Audio Journal listeners will be comfortable with technology and wanting to listen with their smart phones. The students created something tangible and practical. This is one of a few WPI projects that result in something concrete that everyone can use — sighted or not."

Work is not finished. Neamtu said a new student team will look to work on the app further, including developing it as a template that other organizations can use.

Frandsen said, "My aspiration is that the app will become a template for radio reading services nationwide."

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<https://www.worcestermag.com/story/lifestyle/2021/04/15/wpi-students-help-blind-and-visually-impaired-audio-journal-listeners-connect-developing-first-phone/7108925002/>