



The app will focus on themes of:

- Sustainability
- Human Rights
- Social Justice

Synopsis

- Develop a mobile app integrating traditional knowledge with NASA and EPA.
- Empower community members in data collection, improve environmental data accuracy, and promote sustainable practices as a model for other Indigenous communities.
- Conduct workshops for community input, collaborate with NASA and EPA, and launch a pilot app with ongoing support and evaluation.

Research Objective

- Feature local organizations and their services to ensure community members are aware of and can access available support.
- Create a dynamic space for residents to connect, share cultural practices, and stay informed about local events, strengthening community ties.
- Empower residents to contribute to environmental monitoring by aggregating data on weather, water, air, and soil quality to enhance local environmental understanding.

Research Approach

- Gather input from community members about their needs and preferences for the app.
- Conduct tests with community members to refine app features and ensure user-friendly navigation.

Research Results and Products

- The Woniya Wichoni team will use human-centered design and ESG principles to collaborate with Dakota-Lakota Nations on culturally sustaining tools.
- A software system will collect and analyze environmental data, providing air quality insights, with all data publicly available.
- A deployable mobile application will showcase this software.

Commercialization and/or Societal Impact Opportunities

- **Application:** Community engagement mobile application.
- **Key Values:** A mobile platform that integrates cultural knowledge with environmental data.
- **Potential Customers:** Members of the Standing Rock Nation.

Team Names & Collaborators

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Faculty: Dr. Alex Modarresi, Comp Sci; Dr. Nhut Ho, Mech Engr; Dr. Bingbing Li, Manufacturing Systems Engr & Mnmt

Collaborators: Dr. Mafani Mongoh, Bridget Eagle, Fred McLaglin, Alayna Eagle Shield, Zane Prentice, Sunshine Claymore

Citations

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Cromar, K., Gladson, L., Gohlke, J., Li, Y., Tong, D., and Ewart, G. "Adverse Health Impacts of Outdoor Air Pollution, Including from Wildland Fires, in the United States: 'Health of the Air,' 2018–2020" Annals of the American Thoracic Society 21, no. 1 (2024): 76–87. doi:10.1513/annalsats.202305-455oc