

Proposal for WSU-Vancouver Capstone Project

**About Nomadic Broadband**

The Nomadic Broadband Unit (NBU) was built as an open-source solution supporting emergency management in disasters like wildfire, flooding, or search and rescue in Ferry County, an extremely remote location that includes a tribal reservation in Northeastern Washington.

According to the Federal Emergency Management Agency (FEMA) and the Department of Homeland Security (DHS), the interoperability of emergency communications and supporting those teams to improve safety and effectiveness would benefit from better broadband and improved technology. Wireless frequencies are growing in demand to serve as a significant broadband solution for rural and tribal communities. More and more, law enforcement and emergency communications equipment rely on broadband connectivity. However, Ferry County does not have a reliable nor expansive broadband network but now they have a nomadic or mobile unit using the Internet of Things (IoT) to achieve connectivity that relies on 900mHz or StarLink.

To learn more about the County and this opportunity, check out this [news article](https://news.yahoo.com/nomadic-broadband-unit-supply-off-063500430.html).

**Project Description**

Background

The Nomadic Broadband Unit (NBU) is a second-generation upgrade using fixed wireless. The first version was built locally using TV Whitespace and other frequencies (50mHz to 900mHz) in partnership with WSU Ferry County Extension.

The second version of the NBU was built by All Trade Construction (a local business) in partnership with Microsoft, Ferry County, WSU Vancouver, WSU Extension, University of Washington, Sahoma Controlware, and other stakeholders. Students supported the local build by contributing edge services and programming to enhance the IoT capabilities of the NBU.

Project Goals

We want to figure out how to best capitalize on improving’s the functionality and design of the NBU, and how we can adapt existing technologies. The basic goals of the project may look something like this:

* -Research existing design and configuration
* -Improve documentation and software
* -Create documents that support deployment and use of the NBU
* -Deploy and stress test the hardware and software
* -Integrate existing technology to support the core functionality of the NBU
* -Integrate IoT roadmap into GitHub documentation
* -Integrate software improvements into GitHub
* -Integrate ways to improve schematics and drawings of the NBU for open source replication
* -Identify and document ways to improve the NBU software for IoT purposes

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