

# JAMMING OUT

## UAH Spring 2024 EE Senior Design Project

### Project Overview

Our project main goal was to give a solution to a growing problem in society. The problem that we decided to conquer is drones being used for a invasion of somebody's privacy. Our team developed this system in the Spring semester of 2024.

The plan of the Jamming Out team was to evaluate the most common techniques used by drones and interfere with their current state, resulting in the drone crashing down or the drone operator to lose control of the drone. We identified the frequency that we needed to broadcast our signal which was (2.4Ghz) for our drone we were using.

Jamming Outs design was able to create multiple subsystems that gave us the ability to shoot a 2.4Ghz signal for 30 seconds using a Arduino Uno, and a NRF24L0 antenna. We wanted our system to be mobile so we provided the system with a charger module & rechargeable battery.

### Technical Specs

For our microcontroller we selected a Arduino Uno, this allows for us to have 14 digital I/O pins along with 6 Analog I/O pins. This was selected because it was able to operate on a low voltage and also had enough peripherals to run our entire system.

The system software was written to allow the designee to be able to change the pulse duration. The software was coded in Arduinos IDE language.



We chose a 1200mAh rechargeable battery to allow our system to work for around 6 hours before needing to be recharged.



Our team is Jamming Out. The team members are Hayden Casteel (Project Lead), Jacob Carter (Software Lead), Robby Rowell (Hardware Lead), Matthew Pearson (Design Lead), and Tucker Maxwell (Research Lead). We all share a passion for microelectronics and found the ever present security threat of drones to be an exciting challenge to tackle. We started out the semester blundering around a bit when it came to assigning one another work to do, but we quickly learned where each others strengths lie and adapted our roles to suit our strengths. This made all the difference in the creation of our design.

The Antenna was chosen for the fact it is able to easily be attached to the Arduino, and is able to transmit the 2.4Ghz signal needed.

An enclosure for the system was created by using an ammo box. This ammo box allowed for our system to be weather resistant and for all of our necessary components to fit in the 11.5" x 7.25" ammo container. The enclosure holds our Arduino, antenna, charger module, and our rechargeable battery.