**Video Script: 8-11 minutes**

1. **Introduction** (~1 minute) - In this section of the video Chinmay Wadgaonkar, Noah Hoffman, and WeiHao Kuang will introduce themselves in that order. Along with the introduction we will also each state which blocks of the system that we are responsible for. Thus making a nice transition to the contributions part of the video.

Hey! We are team Tele(8) My name is Chinmay Wadgaonkar.

My name is Noah Hoffman.

My name is WeiHao Kuang, Our project is a telemetry device that will be mounted on a doggy harness. The system consists of a ruggedly enclosed transceiver on the harness we call the “Beta transceiver”. This can send GPS, temperature, and battery information to an “Alpha transceiver” that is connected to a MatLab map display at least 0.5 miles away. Also, on the Alpha side, the user can trigger a buzzer on the harness to signal the dog to return.

The 6 blocks that comprise this project are a MATLAB display and Alpha transceiver done by Chinmay, the Beta transceiver and sensing block by Noah, and the enclosure and buzzer sections by WeiHao.

1. **Contributions** 
   1. Individual team members will talk about the parts that they were responsible for along with any specific design choices that they made and the materials they used to make their part. For this part the team members block overviews will be ordered by their first name.
      1. Chinmay Wadgaonkar (~1-2 minutes) - Chinmay will talk about the blocks that he was responsible for: the Alpha Transceiver and the MATLAB GUI display.

I was in charge of the Matlab display and the Alpha transceiver. The Alpha transceiver is the part of the system that receives temperature, battery voltage and temperature data from the beta and then passes it on to the the Matlab script through serial communication. The Alpha transceiver is also the part of the system which lets the user trigger a “buzzer” on the beta side by flipping a switch. I was also responsible for the two way communication incorporated in our system as one of our engineering requirements. I wrote the software which would help the alpha side detect if the switch is flipped and then would generate a “tone” of 4699 Hz. This can be modified to

* + 1. Noah Hoffman(~1-2 minutes) - Noah will elaborate on the parts that he was responsible for: the Beta Transceiver and the Sensor Block.

With the Beta transceiver and the sensor block located on the harness, my job was a mix of hardware and software. The brains of our system are two Adafruit 32u4 LoRa feathers on either end communicating wirelessly. I wrote the software to reliably interpret and send battery, temperature, and and GPS data from the Beta feather to the Alpha feather. For the temperature we used a 10k Ohm Thermistor and our GPS was an add-on board built specifically for the feather microcontroller we were using.

* + 1. WeiHao Kuang(~1-2 minutes) - WeiHao will explain his blocks which were the system enclosure and the system PCB.

I was in charge of the buzzer block and the system enclosure. The buzzer is integrated on the system PCB, which was designed using KiCad. Essentially the buzzer is used to call for the dog to come back to the owner when it is activated. To activate it we can simply flip a switch on the beta transceiver and through two ways serial communication was can create an audible beep to get the dog to return. The system enclosure designed with ruggedness in mind so that the system can endure various tests that are designed to test its limits, such as the drop system drop test and temperature extreme test.

* 1. **Evidence of collaboration** (~1-2 minutes) - For this section of the video we will talk about the approach the team had for the finishing the project. Noah and Chinmay will talk about communicating over LoRa, and Weihao will talk about how the PCB and enclosure interact with the rest of the blocks. Also in this section of the video each member will talk about a challenge that they came across during the project and they will explain how they went about solving these with the help of other team members. (Collaboration video may be included).

1. **Demo** (> 2 minutes) - For the demo section of the video we will show a video including all the components of our whole system. We will elaborate in-depth about the functions of our blocks and Chinmay will introduce the entire system. Noah will talk about the intended application of the system. After that, Weihao will narrate as the other members show the system functioning.
2. **Take-away Message/Improvement** (~1 minute) - In this section of the video, Chinmay will talk about any future improvements that we can make to the system. Also, time willing, we may add possible applications of the system, Noah talking about including multiple beta receivers, and Weihao talking about path tracking and learning. In this section we will also each reflect on the project and what we took away from working on the project as a team.