***Team Agreement***

**EC463/EC464 - Senior Design**

**Fall 2020 – Spring 2021**

We, the members of team number \_2\_, called \_\_Woof\_\_, have entered into a project titled \_\_WOOF\_\_ for the customer, \_\_Gabriela Mcnevin\_\_as part of Senior Design Project, ENG EC463/EC464.

The general objective of our project is:

To create a social media application that leverages external hardware to implement a recommender system. We plan on implementing instant messaging, recommender system trained to classify dog barks, microphone and accelerometer to gather physical movement and barks, robust user interface and a Map feature similar to Snapmaps.

We expect that our major project deliverables will include the following:

Accurately trained dog bark classifier mounted on cloud for recommender system

Robust UI with Maps feature showing user and their friends, alongside messenger functionality

Firestore database for user profile information

BLE module as an indicator for proximity to other users

Microphone and Accelerometer data being sent to a server and stored on Amazon S3

GENERAL CRITERIA FOR SUCCESS

We understand that evaluation of our work in Senior Design will depend on several factors. First is our team's success at meeting our proposed objectives, as described by our specifications, and providing our deliverables in working fashion, with the required documentation, by the course deadlines. Second is our demonstration of individual proficiency at design and at keeping adequate engineering records of our work. Third is our individual and collective team skill in listening, helping others to reach their goals, and negotiating technical and team problems. Finally, we understand the department policy for reimbursement of expenditures made in executing our project and agree that anything spent about the amount reimbursed by the department will be equally shared among all team members.

INDIVIDUAL LEADERSHIP

We understand that Senior Design teams shall be organized to give each member clear responsibility for one or more design areas. Several people may collaborate on a problem, but only one person should be the designated 'leader' for a design area. Each of us should be the leader of at least one design area so that we can clearly demonstrate our individual proficiency in design and in keeping professional engineering records (in our logbooks).

RESOLVING TEAM CONFLICTS

We understand that we need to work to resolve interpersonal and technical disputes within our team, in a professional and respectful manner. This will sometimes involve compromise, and we agree to be open to reasoned technical arguments about our individual areas and the team's collective efforts. We will seek faculty or mentor help when problems appear serious and are not resolved quickly by our efforts.

NON-PERFORMANCE OF DUTIES BY A TEAM MEMBER

We understand that each of us must pursue our design and team tasks in a professional and timely fashion to ensure our team's success. Should a team member fail to show diligence and concern for the team, a meeting of the team and the course faculty will be held to assess the situation and recommend specific short-term performance goals for the team member, and possibly the whole team. If these goals are not met, the course faculty may decide to remove the offending team member from the team. The student will then have to complete the course reporting directly to the faculty as a team of one. This is a serious step and suggests a significant failure on the part of the individual, and possibly the whole team. It should not be considered except as a last resort.

QUESTIONS

We understand that students and teams are welcome to approach the course faculty about this agreement at any time.

INDIVIDUAL TEAM MEMBER RESPONSIBILITIES

The remaining pages list our team members and our individual 'leader' responsibilities.

TEAM MEMBER ADDENDUM (submit one for each team member):

Team Member Name: (printed) Rajiv Ramroop

Team Number \_2\_\_\_\_\_ Team Name: WOOF

I have read this entire document, including my teammates’ descriptions of their 'leader' roles. I understand the document and agree with the descriptions of roles.

Team Member Signature Rajiv Ramroop

Date: 12/1/21

The following paragraph(s) describes the technical problem(s) for which I hold leader responsibility. (Please give technical details if possible. Broad topical claims will be difficult to assess.)

My main objective is to get the hardware implemented and working correctly. Specifically, I need to ensure that the BLE, microphone, accelerometer, and GPS are sending data correctly via our microcontroller. The main technical problem I am faced with is finding a small enough microcontroller that can actually fit on a dog collar, but I will research the correct module over winter break. For the purpose of this semester’s implementation, I will use the Arduino UNO to power the BLE, and use the ESP32 to power the microphone and accelerometer. Our GPS module will be implemented next semester, when we can acquire a microcontroller capable of obtaining GPS information. I am also responsible for getting a good estimate of the power consumption in order to ensure user safety.

TEAM MEMBER ADDENDUM (submit one for each team member):

Team Member Name: (printed) Chase Maivald

Team Number \_\_\_2\_\_\_ Team Name: WOOF

I have read this entire document, including my teammates’ descriptions of their 'leader' roles. I understand the document and agree with the descriptions of roles.

Team Member Signature Chase Maivald

Date: 12/1/21

The following paragraph(s) describes the technical problem(s) for which I hold leader responsibility. (Please give technical details if possible. Broad topical claims will be difficult to assess.)

First, I will integrate the Firestore user profile database into the vanilla React Native social media application. It will contain a new document per user, in which their dog(s) name, weight, breed, or other such profile information will be stored as text. Also, my SQL server will read our microcontroller’s sensor data. I will write a shell script for the web server to run to instantiate and open a SQL server to read/write to, and also integrate reading the sensor data on the React Native application through accessing the same SQL server. I am also responsible for finding a modem-like module to be able to send data back to a server.

TEAM MEMBER ADDENDUM (submit one for each team member):

Team Member Name: Justin Lam\_\_\_

Team Number \_\_\_\_2\_\_\_ Team Name: Woof

I have read this entire document, including my teammates’ descriptions of their 'leader' roles. I understand the document and agree with the descriptions of roles.

Team Member Signature Justin Lam\_\_

Date: 12/1

The following paragraph(s) describes the technical problem(s) for which I hold leader responsibility. (Please give technical details if possible. Broad topical claims will be difficult to assess.)

I will be the leader of the delivery of our User Interface for our project. I will be in charge of having multiple screens on the mobile app. I will work closely to get the User Interface of the Signup/Login, User Profile, Friends Page and History Page using React Native. (Daniel’s working on Map). The User Profile will have your dog’s picture as well as name and info. The Friends Page will feature not only a list of friends you are already connected with, but also suggested friends determined by the recommender systems by Nafis. The History Page will give you a list of previous interactions with other dogs with a WOOF collar and show whether they were good or bad reactions.

In addition to the User Interface, I will be working on the code to transport the audio files from our AWS S3 bucket to our ML model in Amazon’s SageMaker for training.

TEAM MEMBER ADDENDUM (submit one for each team member):

Team Member Name: (printed) Nafis Abeer

Team Number \_\_\_2\_\_\_ Team Name: Woof

I have read this entire document, including my teammates’ descriptions of their 'leader' roles. I understand the document and agree with the descriptions of roles.

Team Member Signature Nafis Abeer

Date: 12.1.21

The following paragraph(s) describes the technical problem(s) for which I hold leader responsibility. (Please give technical details if possible. Broad topical claims will be difficult to assess.)

I am the leader for the recommender system. I am responsible for building a model that could accurately detect dog barks in noises, then classify those dog barks as either hostile or friendly. I am responsible for gathering the data required to train such a model. I am responsible for mounting the model on a cloud and having it run while the application is online. I am responsible for collecting data from Amazon S3 sent by Rajiv, and feeding the S3 data into my model. I’m responsible for gathering the result from the model and communicating it back to our application in the form of a recommendation by associating the source of the sound with the proper user.

TEAM MEMBER ADDENDUM (submit one for each team member):

Team Member Name: (printed) Daniel Shimon

Team Number \_\_2\_\_\_\_ Team Name: Daniel Shimon

I have read this entire document, including my teammates’ descriptions of their 'leader' roles. I understand the document and agree with the descriptions of roles.

Team Member Signature Daniel Shimon

Date: 12.1.21

The following paragraph(s) describes the technical problem(s) for which I hold leader responsibility. (Please give technical details if possible. Broad topical claims will be difficult to assess.)

I am the leader of the Map and Social Media Component of our project, as well as integration of all components into the social media application. I am responsible for creating a Map Component that will include the user’s dogs locations, as well as their friends’ locations. This will create an environment for users to see where their friends are and interact, as well as ensure the user can keep track of their own dog’s locations for safety and security purposes. This also includes a messaging component of the social media application, to allow users to follow up on the recommender system’s results and recommendations. The map component was originally developed using MapBox and React Native CLI, however due to several issues with integration of other UI components is being converted to React Native Maps. The improved React Native Maps connects to an authentication server using JWT Authentication. The messenger component of our application is going to be taken care of using Streams’s React Native Chat SDK Library. Throughout development of these multiple components as well as my teammates, I am going to ensure smooth integration into a complete phone application.