

Doggy Pal Collar

Group #33

Members:

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Project Motivation Statement:

The motivation behind this project is to create a hi-tech dog collar using various technology components to gather vital information about a dog that can help an owner take better care of the animal and help professionals, such as veterinarians, have instant information that can help them provide better medical care to the animal in addition to tracking vitals, location and activity.

Project Goals and Objectives:

The goals of this project are to create a low cost, comfortable collar that can collect and monitor data from a dog that can help provide a veterinarian or an owner with important information. Many commercial products only have one use. For example, some collars only monitor temperature, some only monitor heart rate, some only have gps tracking. Other commercial collars that do have multiple features can be expensive and some even have monthly service fees. This senior design project will create a collar that has multiple features, but be cost effective and user friendly, creating a middle ground between the expensive, fancy collars and the single feature collars.

Project Function:

This Collar will behave like a regular dog collar. Even with multiple features it will not be too bulky or too heavy to cause the dog any pain or make the dog uncomfortable. Within the collar there will be multiple features that will be gathering data throughout the day. These features include GPS tracking, heart monitoring, temperature monitoring, bluetooth connectivity, activity tracking and a phone app that will allow an owner to monitor the data from each sensor.

Requirement Specifications:

A major constraint of this project will be the size of the Doggy Pal collar. The collar needs to fit on the neck of the dog. A medium size collar has a length of 20 inches and a 1 inch width. The technology used for this project will need to fit on a collar of similar size. Standards that will be used include, Bluetooth standard IEEE 802.15.1.

Another constraint will be money. Because one of the goals is to make the collar low cost, going beyond the price of similar commercial products will make the Doggy Pal collar a bad option for customers.

The Doggy Pal collar power needs to last for at least 48 hours. The phone app should be able to access the Doggy Pal collar anytime it is in range for Bluetooth. Each sensor on the Doggy Pal collar should be collecting data from the dog at least every 1 second and transferring the data to the phone app whenever the app is in range. The data should be presented on the app in a graph form to show data changes over time and make the data easy to understand for owners and veterinarians. The values sent to the app include the current temperature of the dog, current activity, current heart rate and current location of the dog.

Estimated Budget:

Item	Quantity	Cost
GPS	1	\$50.00
Heart Rate Sensor	1	\$30.00
Wireless Transmitter	1	\$30.00
Microcontroller	1	\$50.00
Accelerometer	1	\$20.00
Power System (unspecified)	1	\$50.00
Temperature Sensor	1	\$20.00
Collar	1	\$20.00
Other	-	\$100.00
Total		\$370.00

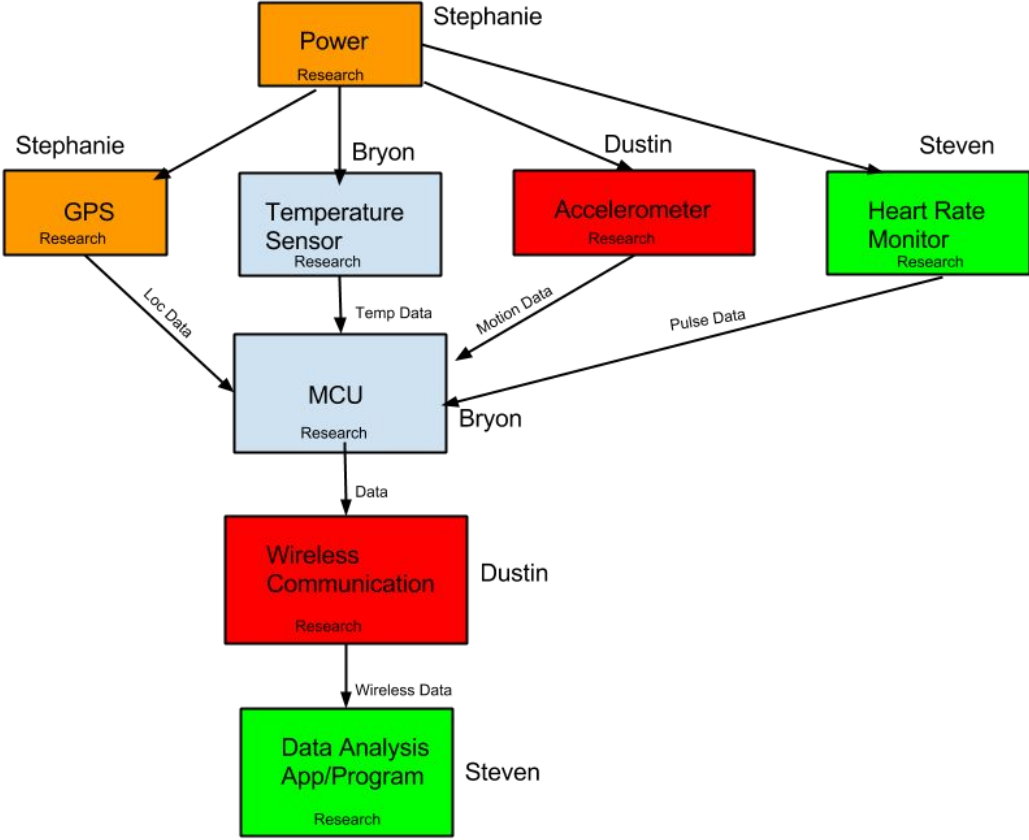
Financing:

We will attempt to get funding through the Texas Instruments Innovation Challenge. We will also attempt to procure some funding from some pet food and pet supply manufacturers.

Milestones:

We would like to be at a breadboard-level prototype stage by the end of Senior Design 1. We would like to have the PCB-level model assembled for testing by midway through Senior Design 2.

Hardware Block Diagram:



Software Block Diagram:

