1.1 REQUIREMENTS & CONSTRAINTS

List all requirements for your project. Separate your requirements by type, which may include functional requirements (specification), resource requirements, physical requirements, aesthetic requirements, user experiential requirements, economic/market requirements, environmental requirements, UI requirements, and any others relevant to your project. When a requirement is also a quantitative constraint, either separate it into a list of constraints, or annotate at the end of requirement as "**(constraint)**." Ensure your requirements are realistic, specific, reflective or in support of user needs, and comprehensive.

Functional requirements

- Device detects PTSD episodes through checking user vitals
- Device on dog's collar is alerted when a PTSD episode is detected
- Device(s) are configurable through an app
- App must be able to run on any mobile operating system
- Devices must be able to turn off during exercise
- Quick Signaling (constraint)

Resource Requirements

- Bluetooth connection
- Power supply
- Mobile device to run app
- Fitbit/Apple Watch (device to read vitals)
- Vibration Component

Physical Requirements

- Device is comfortable to wear for both dog and human
- Adjustable for differents types of people and dogs
- Device does not hurt the dog
- Light (as in weight) (constraint)

Aesthetic Requirements

- Device is discrete on user's wrist
- Device is discrete on dog's collar
- Device looks like and/or is comparable to other modern watches (fitbits, apple watches, etc)

User Experiential Requirements

- Device is not disruptive to user's everyday tasks
- Device does not make PTSD episodes worse
- Can be configured to user's needs
- Simple and easy to use
- Ability to look over data
  - Track frequency of PTSD attacks
  - Time of PTSD attack
  - Vitals logged for PTSD attack

Economic/Market Requirements

- Affordable to the average person
- Accessessable to any person with PTSD
- Energy efficient components

Environmental Requirements

- Device is not disruptive to surrounding individuals
- Dog's device is not disruptive to other dogs

UI Requirements

- Navigability
- Simple
- Consistent
- Helpful in emergency situations

1.2 ENGINEERING STANDARDS

What Engineering standards are likely to apply to your project? Some standards might be built into your requirements (Use 802.11 ac wifi standard) and many others might fall out of design. For each standard listed, also provide a brief justification.

- IEEE 802.15.6: Wireless Body Area Network (WBAN)

  The WBAN will apply to our project because the application (Program) in the veteran wearable device will collect his or her vitals and send a signal to the service dog device.

- IEEE 802.15.1-2005 : Bluetooth and Bluetooth Low Energy (BLE)

  This standard will apply as both wearable devices will communicate through bluetooth.

- IEEE 1725-2006: Rechargeable Batteries for Cellular Telephones

  These standards also will apply to our project as our program will run in the background of the veteran wearable, and the device on the service dog will require a battery that lasts longer to keep the veteran safe.

- **IEEE 12207** : Systems and software engineering – Software life cycle processes

  This standard applies as we went are software components as we want to meet the quality management and quality assurance requirements for our software.

- IEEE 7002-2022: Data Privacy Process

  This standard may apply to our project because we collect data about veterans. Data collected will be things like vitals, time of PTSD detected attack, date, location, etc. Since this data may be stored

for the user to look over and interact with, we may want to consider this standard to ensure privacy for the user's data.