Name: Melvin St.John (E396M267)

Course: EE585 (Senior Design I)

Instructors: Mr. Andy Stallard

Date: 26 August 2021

**Hands-free Emergency Response Bot** (HERB)

In disasters such as a building collapse, it is frequently too dangerous for responders to go into the wreckage to search for survivors. A way to detect survivors without needlessly endangering responders is needed.

A small bot that would be outfitted with a UWB (ultra-wide band) radar sensor to detect vital signs such as a heartbeat within the wreckage. The bot would be small enough to enter tight fit areas that humans could not. It would then send a signal to a receiver if a heartbeat was detected.

This idea is viable because it could save lives of responders as well as locate survivors that might otherwise not be found before it is too late. Technology has developed enough now that these units could be small enough and portable enough to be viable.

**PPD (Police Perp Detection Drone.)**

In 1-2 paragraphs briefly outline the following:

Often times police need a way to find a suspect that flees at night from a crime scene without the need of multiples of officers being pulled from their regular duties. The use of helicopters has historically been utilized in this capacity.

The drone would be outfitted with a night vision camera that transmits a visual to a phone or tablet and a GPS coordinate. This would enable other responding police to know where to respond to instead of wide response searches with many officers.

It is a viable because drones are easily obtainable at reasonable prices. The night vision cameras (or normal vision for day) are inexpensive enough to obtain easily. Furthermore, it could reduce the number of needed response units which frees them up for other calls, making the areas they patrol safer.

**Automatic Plant Tender**

My wife has a handful of plants which are sentimental to her for a couple reasons, yet she is notoriously forgetful about watering them. She then gets upset if one starts to die. She needs reminder to water her plants.

A soil moisture senser that is able to alert someone when the soil gets below a set threshold. It could be set up to light and LED, or sound a buzzer, or send a text if a sim is installed.

This idea is viable because it would be inexpensive to make but what makes is most viable is that it is needed. We, as individuals, need reminders about a lot of things these days. This would just be another way to make life easier. It is also scalable to the garden size and could incorporate multiple sensors reporting to the user. It could also be attached to a small watering system to signal automatic watering.