Team Introduction

My name is Antonio Foster and I am an electrical Engineering major. Today we are here to present to you the Paintball Environment Tactical Engagement Recon System, otherwise known as PETERS. So named for our fearless advisor Dr. Christopher Peters. (How ya doin’)

Outline

For those of you who are unfamiliar with the sport of paintball, don’t worry, after a brief introduction explaining what this project is about I am going to give you a crash course on the equipment that is used by your average paintball player, just so everyone is at least familiar with the terminology you will be hearing throughout this presentation. After that, we will get into the problem statement, the research we have conducted, and the solution that we are proposing. We will talk about the progress we’ve made so far, and the work that is yet to be done. And then we will end with some budgetary discussion and the impact that we hope this project will have on society.

Introduction

In the game of paintball, there are a lot of elements that prevent players from coordinating with teammates as efficiently as possible. Typically, before a round of paintball has begun, each team will have a short amount of time to get to their starting position, and to come up with a strategy that gives them the best chance at victory. Once the match has begun, communication with teammates becomes very difficult and if teammates are taken out of the game or the strategy is failing there isn’t really any convenient way of knowing. Add to that fact there are distractions to consider, which include stopping to figure out how much paint is left in your hopper, and how much compressed air is left in your tank. This project aims to provide a solution to these distractions, and to add a level on indirect communication between a player and his or her teammates.

Equipment Overview

Here we have a simple illustration of the equipment that your typical paintball player will use. To the left you can see a paintball mask which consists of a pair of goggles and some protection for the players face. In the middle you can see a generic representation of a paintball marker. The hopper is the container that feeds paintballs into the marker, and down here you can see the compressed air tank. There is another configuration that we want you to be aware of. Some players prefer to wear the air tank on their back and then connect it to the marker with a remote line as seen in the image to the right. This is something that we are taking into consideration during our design process, because our goal is to have this system as universal as possible. So, no matter what type of setup you prefer to use, we can accommodate you.

Proposed Solution – Feasibility

We believe this system is feasible because many of our requirements are satisfied through the use of commercial off the shelf products. We have acquired a pressure sensor that fits the requirements, the Raspberry Pi2 has more than enough processing capability. And the Recon Snow2 HUD has built-in features that we use: Built-in GPS module, Accelerometer, Gyroscope, it is Wi-Fi and Bluetooth capable. And by compartmentalizing the project into smaller tasks, the overall project becomes more manageable. We divided the work into software and hardware categories, and those two main categories are broken down further and tackled one at a time.

Fall Progress – Hardware

So far this term, we have purchased and acquired all of the project components. The Pressure sensor we will be using has been tested for reliable data in two locations using Arduino as a testing platform. We will talk a little more about that in a min. And we have also run some preliminary testing of the break beam system for feasibility. Now Ken will go over the results of the pressure sensor analysis.

Industrial Budget

Here we have our industrial budget for the production of a prototype. We gave ourselves a salary of $60,000 each with benefits. And all of the office costs you see here are actual figures from a Zillow listing for an office space we found in Philadelphia. And the unit component cost covers all the parts we’ve purchased for the design, all of which totals to just over $400,000.