**CS 4850 Spring 2019: Form1: Analysis of Project and Team Plan**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Project Name:** | | *Custom Taillight Application* | | | |
| **Description:** | | *THe purpose of this project is to create a custom set of taillights for offroad use. The taillights will have custom patterns for braking, turn signals, emergency lights, and a “show mode” with custom animations. The show mode will also include a simple arcade mode where players can connect via bluetooth on an app to play one another in pong or snake (for single player). An app will need to be developed to control the taillights different modes. A microcontroller will be required to change modes locally on the taillight module itself. We also require PCB boards to solder in LEDs as the displays for the taillights. The taillights will be programmed with a Raspberry Pi or Arduino in the Python language.*    Team Members: Leland Burns, Xiaoju Jiang, Nathan Kurz, Brandon Nguyen, Anthony Parks, Clark Wilson | | | |
| **Components Needed** | | | **Skills Required** | **Team Members** | |
| **Name** | **Skillset** |
|  | *Describe this component of the end system* | | *What is needed in order to build this component* | *Who* | *What skills do they currently have, and what skills will they need to develop* |
| **1.** | Two LED screens to act as the tail lights of a car. | | LED Screens  Tail light case for car  Hardware skills  Modeling skills | Anthony Parks  Clark Wilson | Knowledge of wiring/soldering. Possible use of chips to control array of LEDs. |
| **`2.** | Raspberry Pi will communicate what animations will be displayed on the LED screens. | | Linux OS installation knowledge    Hardware/Software communication skills | Anthony Parks  Brandon Nguyen | Programming skills in various languages.Will need to learn how to program in Python.  Brandon: skills include: Beginner knowledge in python.Skills to be developed: Knowledge in python and the hardware and software communication between the Raspberry Pi and the LED screens |
| **3.** | Mobile App to send commands to the Rasberry Pi | | React Native development skills    Bluetooth/Wifi libraries to connect to the rasberry pi | Nathan Kurz    Xiaoju Jiang | Nathan: Very minor React Native development skills. Will need to create some test applications and increase knowledge base of React Native as a whole.    Xiaoju: we work together to finish Mobile App to send commands to the Raspberry Pi. |
| **4.** | Website to promote product | | HTML/CSS/JavaScript/Node.js/React/JSON    Other potential web development technologies | Nathan Kurz    Xiaoju Jiang | Nathan: Some experience building websites on both the frontend and backend. Will need to become more fluent with React and Node to have a professional and interactive webpage.    Xiaoju: we work together to finish Website to promote product. |
| **5.** | Modes for the taillights: driving mode, show mode, game mode. | | Knowledge in programming languages such as Python | Leland Burns  Clark Wilson  Brandon Nguyen | Leland:knowledge in c++, c#, java.  Skills to be developed: gain more experience with python and any other languages necessary  Clark: knowledge standard OO programming, Object Oriented analysis & design, and scripting  Skills to be developed:  Team collaboration,Quality assurance/testing, version control, adhering to good coding practices  Brandon Nguyen: Knowledge in programming languages such as python and java.  Skills to be developed: understanding what needs to be in each mode and how to properly display each mode on the LED boards. |
| **6.** |  | |  |  |  |
| **7.** |  | |  |  |  |
| *Add additional components or sub-components as needed.* | | | | | |