DropZone HQ

**Team**

Paul Bayruns

Jatin Bhakta

Andres Blotta

Brian Krick

Jon Spratt

Paul Turner

**GitHub Link:** [**https://github.com/sprattj/Senior-Project**](https://github.com/sprattj/Senior-Project)

**Summary**

DropZone HQ is a service that seeks to streamline the equipment management of skydiving dropzones worldwide. Currently, many dropzones keep paper records to track instructors’ jumps and which employees repack which parachutes throughout the day. DZHQ seeks to reduce the human error involved in this process while also enabling all relevant employees at the dropzone to access and interact with this information more easily. In addition to jump records for the gear, DZHQ also seeks to manage the damage, repair, and maintenance statuses for all gear. This will allow the riggers (employees certified in and responsible for skydiving gear repair) to have a quicker, more organized view of what problems have been reported with the equipment. An organized record of these repairs and damages will give the owners and riggers a more informed perspective for gear purchasing and gear replacement at the dropzone. Beyond gear repair, DZHQ will also manage general inventory and gear location (standby, out for jump, etc), expanded to include gear rental records. Finally, DZHQ will provide useful statistics about many aspects of the dropzone included in the above services, leading to more informed decisions by the owners when handling employee management and workflow design. Simultaneously, these statistics will offer employees the chance to track self-productivity via private access to their own data, potentially improving workplace performance.

**Goals**

1. Build a web app that is capable of supporting a dropzone with the same workflow and data/jump throughput of our representative dropzone, Sky Dive CrossKeys in Williamstown, NJ.
2. Have a workable version that could be used to reduce frustrations of dropzone employees by creating intuitive, easy to use interfaces throughout the app.
3. Improve record-keeping accuracy.
4. Provide useful statistics to different dropzone employees to improve dropzone management.
5. Fill as many gaps as possible in the services covered by [Burble Software](http://www.burblesoftware.com/), a company that handles customer registration/payment and plane load scheduling as a subscription based service for 98 dropzones in multiple continents.

**Features**

The features of DZHQ center around meeting the needs of several different types dropzone employees:

1. Instructors
2. Packers
3. Riggers
4. Owners/Administrative Staff

To meet these needs, DZHQ will have:

1. A cloud hosted database and website dedicated to the individual dropzone.
2. A secure login to this website before any content on it is accessible, the credentials for which are to be shared with employees at the dropzone only.
3. Employee IDs and PINs for identity and permissions verification within this secure area, for use when attempting to perform certain actions in the system. These IDs will also be used to track employee statistics.
4. Different areas, pages, or menus of the app containing the features that fulfill the needs of the different employee roles, listed below.
5. Instructor
   1. Two lists (one for “student”, one for “tandem”) of active jumps and jumps done previously in the day, including what gear, time, instructor, and plane are associated with the jump.
   2. Ability to add a new jump to this list, inputting all of the aforementioned data associated with it.
   3. Verification with ID&PIN when attempting to add a new jump, preserving the integrity of the records and only allowing employees marked as instructors to add jumps (and only their own jumps).
   4. Ability to report damage on gear and specify if it is critical (rig cannot be used) or noncritical (rig has very small or aesthetic damage that should be repaired at end-of-day), which will notify the rigger.
   5. Display of damage reports on the same screen so the instructor knows what gear to take out (non-critically damaged gear should only be used if no other gear is available)
   6. View active pool of gear available to sign out for a jump.
   7. View all of this data in real or semi-realtime so that an instructor does not try to sign out gear that has already been signed out for a jump by another instructor around the same time on another device.
   8. Ability to authorize a rental rig to a fun jumper.
6. Packer
   1. Can view the same lists as Instructors.
   2. Button next to each unpacked jump in the list that enables the packer to mark the jump as “packed by me”
   3. Require verification with ID&PIN when attempting to mark a jump as “packed by me”
   4. After a packer claims a rig as packed by them, replace the “packed by me” button with their initials and prevent any other packer from marking the rig as “packed by me” themselves.
   5. Make these changes in real-time or semi-realtime so that a packer does not try to marked a chute that has already been marked by another packer around the same time on another device.
   6. Ability to authorize a rental rig to a fun jumper.
7. Rigger
   1. An inventory and repair section that requires verification with ID&PIN to access and only allows riggers to enter.
   2. Ability to see and manage all inventory that is in the repair area, giving a view of all gear and its info such as gear type, time of arrival for repairs, repair priority level, damage notes, and other related fields.
   3. A live or semi-live view of damage reports on gear as they are created.
   4. Ability to remove a piece of gear from the active pool and denote it as being taken for repairs, disabling instructors/packers from interacting with it in their 2 list view mentioned above (done just before the rigger heads to grab the gear from the active use/on standby area and brings it to the repair area).
   5. Ability to see repair records for gear so that recurring/previous problems can be noted or used to help the rigger make the best repair/replacement choices.
   6. Ability to add or remove equipment on the inventory screen.
   7. Ability to authorize a rental rig to a fun jumper.
8. Owners/Admin.
   1. Ability to view in depth statistics about any information recorded by the system.
   2. Ability to access all screens.
   3. Ability to add or remove equipment on the inventory screen.
   4. Ability to add or remove employees on the employee screen.
   5. Ability to authorize a rental rig to a fun jumper.

**Limitations**

1. Cannot work offline or on local server: internet connection to our cloud-based database host required.
2. No processing of customers’ payments or reservations, as this is handled at dropzones by [Burble](http://www.burblesoftware.com/)..
3. Potential temporary limitations on dropzone size/throughput due to availability/pricing of scalable cloud-based database hosting solutions, and other unforeseen limits in resources during development.

**Stretch Goals**

1. Expand our application to one or more mobile platforms as a native app, primarily for Android and/or iOS.
2. Work on solving any additional dropzone problems reported by our developer and product owner Brian, who works at a dropzone and will be giving occasional updates to/having discussions with his coworkers about this project throughout the semester.
3. Make changes to a copy of the system, creating an offshoot version that can be used as a template/launching point for other projects whose business models involve employees, privileges, inventories, and rentals, such as the Westby Hall print lab.
4. Create a product that is full-featured, polished, and potentially presentable to [Burble Software](http://www.burblesoftware.com/) for either sale of the project for integration into Burble, or a partnership for an offering alongside their services.