LyfeStock Project Requirements Summary

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Product Use Cases

Several use cases were derived for the system. Primarily, what we consider our “primary” use case would be the example of an end user utilizing our application to obtain and interpret biometric data in order to determine if there are any anomalies and if any pre-emptive action needs to be taken in regards to the health of the animal.

Functional Requirements

There were many requirements surrounding the underlying functionality of the application. Notably, the application was required to gather biometric data from livestock, parse that data, and generate alerts for the user. Additionally, the product was required to locate any missing livestock, establish a baseline for the health of any given livestock, and generate any alerts surrounding hazardous environmental conditions..

Data Requirements

The main requirement surrounding data storage was for the data to be stored in a database. Considering the amount of data that would be collected for later use, it was determined that a widespread database was the best option moving forward.

Performance Requirements

There were two main themes surrounding the performance of the system. For one, the system would have to reliably keep up with data coming in from millions of active animals at once, accepting tens of thousands of new data points a minute. Additionally, there were requirements surrounding the precision level of data collected, ensuring that there were little to no errors found when collecting data.

Dependability Requirements

These requirements focused mostly on creating strict guidelines for the failure rate. Since the application has to deal with livestock health, the system should strive to create a low downtime to prevent any important data from going stale. There is also a requirement that the microchip is compliant with all USDA regulations and standards.

Maintainability and Support Requirements

As our application is intended for constant use, the main focus of this area of the requirements was on determining a regular maintenance and support schedule. Furthermore, given the scale of the data, attention was given to making storage dynamic and allowing a wide range of backwards compatibility for the most user access possible.

Security Requirements

The security requirements for the system ensure prevention of any unauthorized access by various methods including the social engineering methods through the support call center of the company. Also, the system uses a firewall and data encryption to hide every single piece of information being accessed by the system users.The system security ensures that the data

privacy right for clients is safe and protected by taking extreme measures to obtain the standards for the system safety.

Usability and Humanity Requirements

These requirements were focused mostly on the usability of the application. The main requirement that outlined the entire section would be the creation of a user manual, which is targeted to ensure that all users are aware of the capabilities in the system.

Look and Feel Requirements

These requirements focused on getting user feedback on subjects such as primary theming and color schemes while also implementing a UI design that attempts to minimize the clutter that is to be expected when a user is presented with precise medical data from hundreds if not thousands of datapoints.

Operational and Environmental Requirements

These requirements focused on building up the system to be robust enough to maintain the constant use model within a relatively hardware and software hostile environment such as a rural farm, having the system in its entirety be easy to install on both the hardware and software sides and utilizing third party GPS functionality and a regular minimal update schedule to guarantee consistency

Cultural and Political Requirements

These requirements focused on getting our application to be accepted by our target audience, who tend to skew more towards the conservative and tech-skeptical side of the spectrum, through the use of simplified design philosophies, developing based primarily on user feedback, and being transparent with the data usage and privacy on the application.

Legal Requirements

The legal requirements were mostly surrounding the ensurance that the application was compliant with any existing standards. For example, there is a requirement regarding the application’s compliance with all restrictions laid out by the Animal Welfare Act.

Requirement Acceptance Tests

This section outlines every single test that will be used to confirm the requirements are met. All tests were created with the intention of ensuring that a specific requirement was met, however some tests also served the purpose of providing a metric to test multiple requirements at once. An example includes the 1011, the Biometric Reading Test. This test was used to ensure that the biometric readings collected from the microchip was accurate, and that the system was able to output the correct color result given that.