Functional Requirements Document

# SAN HUMBERTO

## MONITORING SYSTEM

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|---|---|---|---|
| 1 | Creation | Francisco Núñez | 13/Sept/2016 |
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# 1 INTRODUCTION

In the milk industry the animal care is the base for a successful and highly productive ranch and calves are the ones that need more special treatments and a close monitoring to ensure their optimal growth. The main problem a ranch encounters with this is the lack of technology, by keeping track of all of the animals needs on paper or outdated systems compromises the integrity of the animals as something important might slip by.

Realizing this, Juan Carlos came to me looking for a solution for an easy way to keep the records and a simple interface that any of the worker could understand in order to register and consult the information.

## 1.1 Purpose

The main purpose of the system is to keep a clean track of the registered data enabling searches and reports for both individuals and groups. SH Monitoring System will simplify the registration of a calf's data and will enable an atomized reporting system so the workers can have a better idea of the development of the animal with the help of graphs.

## 1.2 Scope

The scope of this first stage of the system will cover only the registering and consulting part as this is the base of the system. After being able to register and visualize the data, the second part would be to implement the reports using this data and enabling the user to have a better perspective of the data it has gathered.

## 1.3 Background

This system will be developed entirely by me, Francisco. I have developed in the past both front-end and back-end modules of different projects. I have been working for 4 years as a web platform development and created various systems throughout my student years in technologies as PHP, Python, Java, C++ and C#.

## 1.4 References

The main 2 technologies I will be using to develop this project are PHP and Typescript. Being both scripting languages, PHP for back-end and Typescript for front-end development. PHP enables the connection with the database while Typescript is a typed modification of JavaScript made by Microsoft in order to add Object Oriented Programming to JavaScript.

http://php.net/

https://www.typescriptlang.org/

## 1.5 Assumptions and Constraints

### 1.5.1 Assumptions

- Knowledge of PHP
- Knowledge of Typescript
- Clear definition of user stories
- Deployment environment support PHP
- Internet connection throughout the ranch

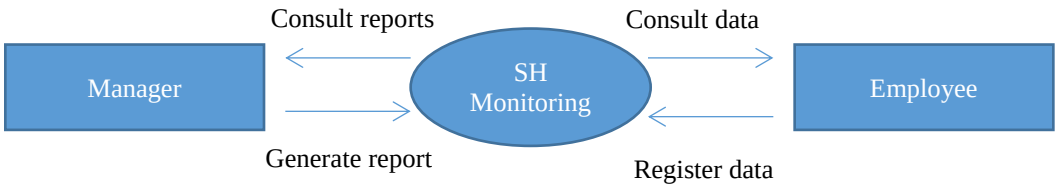
### 1.5.2 Constraints

- The platform has to be extremely simple to use
- Affordable hosting
- The system must be available 90% of the time
- The system must be mobile device compatible

# 3 FUNCTIONAL REQUIREMENTS

## 3.1 Context

The system is used by the employees and the manager. The employees are the ones working on the field and are the ones registering the data and visualizing it while then manage is the one that generates the reports in order to consult them and visualize all the data.



## 3.2 User Requirements

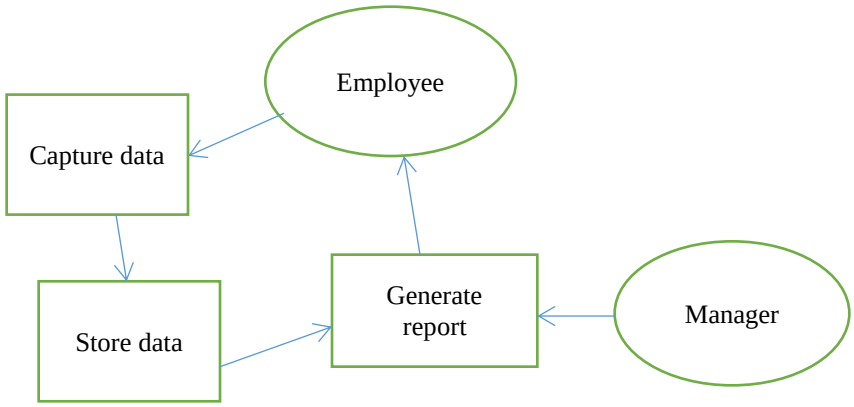
Manager and Employee:

- Update calf
- Visualize calf data
- Visualize reports

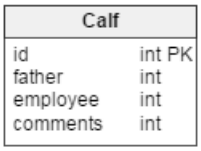
Manager only:

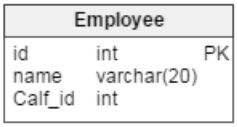
- Generate report
- Add calf
- Remove calf
- Add employee
- Remove employee
- Update employee

## 4.1 Data Flow Diagrams



## 4.2 Logical Data Model/Data Dictionary




## 4.3 Functional Requirements

- Login
- Logout
- Add calf
- Edit calf
- Delete calf
- Manage account
- Delete account
- Create account
- Update Calf
- Display report
- Generate report

# 5 OTHER REQUIREMENTS

## 5.1 Interface Requirements

The interface has to be really simple in order to be used by the employees that have almost no experience with technology.

It has to be responsive in order to be used on tablets.

### 5.1.1 Hardware Interfaces

The supported interfaces are only input/output devices such as mouse clicks and keyboard input or even the screen touches.

### 5.1.2 Software Interfaces

The system will interact only with web browsers and no other application.

### 5.1.3 Communications Interfaces

HTTP and TCP/IP.

## 5.2 Data Conversion Requirements

N/A

## 5.3 Hardware/Software Requirements

Internet connection, HTML5, CSS3 and a PHP compatible server.

## 5.4 Operational Requirements

### 5.4.1 Security and Privacy

User authentication so only authorized personal can access the system.

Input validation on client side.

Input validation on server side.

### 5.4.2 Recoverability

A. In the event the application is unavailable to users (down) because of a system failure, how soon after the failure is detected must function be restored?

B. In the event the database is corrupted, to what level of currency must it be restored? For example "The database must be capable of being restored to its condition of no more than 1 hour before the corruption occurred".

C. If the processing site (hardware, data, and onsite backup) is destroyed, how soon must the application be able to be restored?

### 5.4.3 System Availability

The system must be up 100% during the day which is when the employees are keeping track of the calves, the system can be offline during night as the employees are either sleeping or taking care of the adult cows.

### 5.4.4 General Performance

The reports have to be generated fast and efficiently without locking the system.

### 5.4.5 Capacity

The system must be able to store large amounts of data of over 500 calves during long periods of time (discussion pending with the client) as the main purpose is to keep track of the calf development.

### 5.4.6 Data Retention

As mentioned before, the data retention period is yet to be discussed but it would be of at least a year for each calf.

### 5.4.7 Error Handling

In case of any error the system must notify the user. Depending on the warning given, the user must re-enter the information or contact the system manager to fix it.