Requirements document

The purpose of this document is to describe the requirements given by our client Debbie Fogell, working with the Mauritian Wildlife Foundation (MWF), for the new Echo Parakeet tracking System. This document includes list of functional and non-functional requirements that have been maintained throughout the project.

Purpose of the system

System will be used by researchers in Mauritius to track and maintain Echo Parakeet population. The proposed will be able to store all information that is currently collected about birds, allow users to maintain and manipulated all data and allow users to export reports that are used by researchers.

Functional Requirements

1. Allow users to log in and out of the system
2. Allows to store all information that is currently collected about birds (Example of main spreadsheet 'Stud Book' has been sent by client for us to learn what information is currently collected about birds)
3. Allow users to view all historical data collected about birds
4. Allow users to add information into the system
5. Allow users to edit information in the system
6. Allow users to delete information in the system
7. Allow users to export reports from the system

Non-Functional Requirements

1. **User guide** that explains how to use and maintain the system and fix errors.
2. **User Friendly GUI**
3. **Robust and durable infrastructure** (Hopper units need to be modular and easy to take off and put on or be able to withstand disinfectant baths)
4. **Security** - System should allow different levels of access. Field staff should be able to input data but not extract reports Project coordinators should be able to input and edit data and extract reports. Higher level staff should be able to export reports but not input or edit data.
5. **Reliabilit**y - System should be accessible 24 hours a day, 7 days a week.
6. **Serviceability** - Any future modifications or services should be easily implemented and managed.
7. **Allow access to multiple users** to use system at the same time (especially important after breeding period when all data is entered in bulk)
8. **System should store information about data modifications.** Users with highest level of access should be able to see what information has been added into system and if information is edited system should display both modified and historical data in order to be able recover information if errors are made.
9. **Data validation** - System should not allow text where only numbers required and vice versa.

Nice to have features

1. A camera that takes pictures of the bird when they go to the hopper (camera arm needs to support up to 350g)

2. Be able to transfer data wirelessly (manual transfer is acceptable if it's not possible)

Development platform

Most Useful – Mobile App
Nice to Have – Desktop App
Do not want – Website (by website our client implied the web app that requires the Internet connection in order to access the system)

Specific requirements related to stored information

1. Ability to easily pull up some (hopefully all) of the following information:
    - Bird ID
    - Name
    - Sex
    - Male Parent
    - Female Parent
    - Age
    - Breeder or Non-Breeder
    - Nesting Site
    - Distance of site from nearest hopper
    - When bird was seen last

2. Ideally this list should be easily connected to the main 'Stud Book'
3. Nest Site management
    - Nest Site Name
    - Description
    - Coordinates
    - Nest Site distance to hopper (in km)
    - Occupied by what female and Male birds (only names required not ring iD)

Options should be available to register and edit Nest Sites

Proposed Approach/Functionality to our client

Web App - allows to build robust and user friendly systems. It was explained to client that Web App does not require Internet connection in order to access the system. In the future, if the Internet connection is established in all research areas system could be accessed from any location.

(Agreed with client to proceed)

Live View of birds visiting feeders - System can be run in the background allowing researchers to see how often birds are visiting feeders.

(Agreed with client to proceed)

Ring Management - Information about RFID enabled rings will be sent to site periodically and users will have to import CSV file in order to store and manage information about rings that are not assigned to birds. Information about assigned RFID rings is also stored and maintained.

(Agreed with client to proceed)

Principle of Least Privilege - System administrators will be able to choose what privileges should be assigned to each user. Based on requirement listed below about **Security,** we proposed this approach as it may be easier to implement as well as allows system administrators to decide what each user of the system is allowed to do regardless their role.

(Agreed with client to proceed)