DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
THE UNIVERSITY OF TEXAS AT ARLINGTON

SYSTEM REQUIREMENTS SPECIFICATION
CSE 4316: SENIOR DESIGN I
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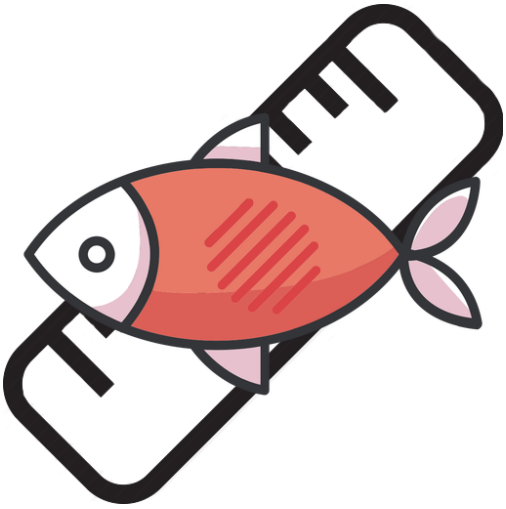

TEAM THE FISHY PROJECT
FISHMEASURE

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Revision History

Revision	Date	Author(s)	Description
0.1	11.14.2015	SwS, AC, BT, SuS	document creation

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1 Product Concept

This section describes the purpose, use and intended user audience for the FishMeasre product. FishMeasure is a system that can estimate the length of a fish once its photograph is clicked. The product takes a photograph of a fish along with a coin kept on the same plane. The application will then compare the diameter of the coin to the length of the fish in terms of pixels then it will apply the math to give the final metric result of the fish's length.

1.1 Purpose and Use

FishMeasure is an Android App that measure fish using quarters. The app will accept pictures, find a quarter, and allow the user to draw a line that is then measured using quarters as a metric. Users can then submit images taken to a social media platform for identification and comment.

1.2 Intended Audience

FishMeasure is for amateur fishermen who mainly go fishing for leisure. These fishermen typically travel with incomplete tackle sets. The app will be designed to be usable with little experience, and does not depend on fishing knowledge

2 Product Description

In this section the overview of the FishMeasure is being discussed. The key feature of the application and its implementation is also discussed here. Along with that the this section also defines how end users and administrators will interact with the application

2.1 Features & Functions

FishMeasure will be able to accept images from an android smart-phone, detect quarters found in images, allow the user to draw lines on images, and allow users to upload images to social media platform. The app will contain a storage space to access images from, a UI module to interact with the app, a computer vision module to detect images, and a social media module to upload photos to.

2.2 External Inputs & Outputs

The input for FishMeasure will be in form of an image that will be taken from within the application itself. The user will have to make sure that the coin and fish are within the camera frame and also make sure that the coin and fish lie on the same plane to get accurate measurement. The output of this interaction would be the length of the fish and the user getting an option to save the data or share the data on multiple social media platform.

2.3 Product Interfaces

FishMeasure will be accessed using an android smart-phone. It will also be connected to an online server to allow other users to see images, using the app.

3 Customer Requirements

FishMeasure is an application whose output is highly dependant on the user interaction with the application. The user role as placing the coin and fish, aong with handling the camera is very crucial for accurate output of the application.

3.1 Able to click Photograph and analyze the Image

3.1.1 Description

The application should be able to click the photograph of the fish and coin. After clicking the photograph the application should be able to recognize the coin in the picture and also mark the start and end of the fish. Then the application should calculate the distance between the start and end of the fish and calculate that distance in terms of the coin. Then it should apply simple comparison math to provide the output in metric terms.

3.1.2 Source

The Fishy Project Team

3.1.3 Constraints

The phone's camera should be functional and should be able to capture high definition images

3.1.4 Standards

None

3.1.5 Priority

Critical

3.2 Account Creation and Use

3.2.1 Description

The user should be able to create an account to save the history of their activity as well as authenticate themselves for the social media ascpect of the application

3.2.2 Source

The Fishy Project Team

3.2.3 Constraints

The user data should be encrypted and stored securely.

3.2.4 Standards

None

3.2.5 Priority

High

3.3 Social Media Platform

3.3.1 Description

The user should be able to share their images to the multiple social media platform like Facebook, Twitter, and Instagram along with the measurement data.

3.3.2 Source

The Fishy Project Team

3.3.3 Constraints

There should be available API's of mentioned social media platform to link FishMeasure to them.

3.3.4 Standards

None

3.3.5 Priority

Low

3.4 Self Contained Social Media

3.4.1 Description

The user would be able to share their photograph on the application's self contained social media and have the ability to like, comment, or share other user's catch.

3.4.2 Source

The Fishy Project Team

3.4.3 Constraints

We should have a strong enough server to handle the load of social media aspect.

3.4.4 Standards

None

3.4.5 Priority

Future

4 Packaging Requirements

The product only comprises of a software part. It will be readily available on online application stores and users would be able to directly install it on their personal devices.

4.1 Software Distribution

4.1.1 Description

The application software will be readily available for download on the Google Play Store. The user will simply need an internet connection, search "FishMeasure", and press the download button. The app will be downloaded to their device and be ready to use upon opening the application.

4.1.2 Source

This requirement was established and developed by the Fishy Project team

4.1.3 Constraints

The user will need to have a smart phone running an Android operating system Kit Kat or higher. IOS will not be supported.

4.1.4 Standards

The application should meet the security and quality standards of all app-stores.

4.1.5 Priority

Distribution will be a critical priority. Without easy access users will not be as inclined, or even capable, of accessing the work our team has done. The software should also run easily with minimal set up for greater ease on the part of the user.

5 Performance Requirements

The application is a mobile based application and hence some performance measure like calculation time and battery consumption become very crucial.

5.1 Calculation Time

5.1.1 Description

Due to timing requirements of handling live, wild animals. The system shall perform calculation measurements quickly enough so that the fish does not become over-stressed nor asphyxiates. Quick calculation time will also reduce the annoyance to the user while waiting for the result

5.1.2 Source

The Fishy Project Team

5.1.3 Constraints

The calculation algorithm need to be optimize-able to reduce calculation time

5.1.4 Standards

None

5.1.5 Priority

High

5.2 Battery Consumption

5.2.1 Description

The application should utilize as less energy as it can as peole using this app is assumed to have gone fishing and is not in quick access to electricity so the application must not drain the power of the smartphone.

5.2.2 Source

The Fishy Project Team

5.2.3 Constraints

The smart-phone should be capable enough to handle current mobile applications as older divice tend to have low battery life.

5.2.4 Standards

None

5.2.5 Priority

Critical

6 Safety Requirements

While the system does not contain any physical component there is no concern of application adhering to physical security standards. However the application does require a certain level of intellectual security like the confidentiality and integrity.

6.1 Confidentiality

6.1.1 Description

The software should keep all the data secure and make sure they are not tampered with. Further no user data should be shared with anyone without user authorization.

6.1.2 Source

The Fishy Project Team

6.1.3 Constraints

The security of data is dependent on the security of the encryption algorithm.

6.1.4 Standards

ISO/IEC 27002

6.1.5 Priority

Critical

7 Maintenance & Support Requirements

The product is completely software based so we won't have to worry about the maintenance or replacement of physical components. The software component, however, will require regular bug termination as well as updating with new technology and features.

7.1 Updates

7.1.1 Description

The system shall allow updates by re-installing over the app. These updates will include regular bug fixes and occasional technology updates. The system shall replace all files, but not directories, to preserve galleries and allow updates to code

7.1.2 Source

The Fishy Project Team

7.1.3 Constraints

The user should agree to download and install the updates

7.1.4 Standards

None

7.1.5 Priority

High

7.2 Server maintenance

7.2.1 Description

The server will maintain the social Media aspect of the application

7.2.2 Source

The Fishy Project Team

7.2.3 Constraints

The system shall have a server lifetime no longer than the lifetime of the design project. The server, if implemented, will cease support at the conclusion of senior design 2.

7.2.4 Standards

None

7.2.5 Priority

High

8 Other Requirements

The application highly depend on how the user setup the fish and coin to get the measure so there will be some user instructions that will inform the user the correct way to setup the image.

8.1 Instructions

8.1.1 Description

It is very crucial for the fish and coin to be in the same plane for the application to produce accurate result. Hence we will create an instructional video to inform user about the procedure.

8.1.2 Source

The Fishy Project Team

8.1.3 Constraints

User should be willing to watch the video

8.1.4 Standards

none

8.1.5 Priority

High

9 Future Items

9.1 Self Contained Social Media

9.1.1 Description

The user would be able to share their photograph on the application's self contained social media and have the ability to like, comment, or share other user's catch.

9.1.2 Source

The Fishy Project Team

9.1.3 Constraints

We should have a strong enough server to handle the load of social media aspect.

9.1.4 Standards

None

9.1.5 Priority

Future

REFERENCES