IEUK 2020 - Technology

Project Manager

Facial Recognition Software

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Project Summary:

The aim of this project is to establish the successful design of a facial verification software for the UK bank to aid in the sign in process for users. This enhances the user friendliness of the application. A successful project would consist of a safe and secure method for the UK bank application to allow users to use online banking utilising facial features whilst minimising the risk of the user's being hacked using the facial recognition software.

Key Feature and Security Considerations:

Key Features:

- Reading the geometry of the user's face to identify facial landmarks (e.g., the distance between eyes and the distance between your forehead and chin)
- A separate secure database for the storage of user's faces to act as a password for their accounts
- A strong and secure matching algorithm, using thousands of points rather than hundreds on the user's face to identify them and enhance the security of the application
- Data encryption for the image both during transmission from the database and whilst not in use

Current Security Considerations:

- Grigory Bakunov's algorithm to create special makeup that fools the facial recognition software (has not been published due to the risk of use from hackers but still a large possibility)
- Vietnamese company successfully used a mask to hack apple's face id software in 2017
- Infrared images used by a German company in 2017 successfully bypassed facial recognition software
- Description of the software 'Fawkes' detailed by 'The Verge' in 2020 to distort public selfies and photos accessible by social media
- 'Generated Media's' publication of a tool named 'Anonymizer' allowing the creation of several synthetic portraits from uploaded images to bypass the software

How these are being Circumvented:

- 'Liveness' detection implementing a check of the dimensions for the person displayed (2D or 3D) ensuring the person using the software is 'live' meaning in 3D.
- Ensuring morphed portraits have not been joined into a reference document (e.g: a passport)

Core User Experience Considerations:

- Recognition of different environments, for example light and dark, allowing the user to access their accounts at any time of the day increasing ease of access
- Excluding hair types since this is not a consistent attribute to a person, so the application should only take into consideration the facial features rather than external features that can change on a daily basis.
- Different angles that the user might be facing the phone should also be considered considering the inefficiency in having a user maintain one static angle to log in.

User Story Summary

User Story	Acceptance Criteria	Sprint
As a logged-out user of the banking application, I want to be able to sign into the application in a dark environment so that I do not have to turn the lights on when I try to access the application.	Given I am a logged-out user, and it is dark in the room, when I login using facial verification, create a bright white screen to simulate light to identify my facial features and then log me in.	**Sprint 1**
As a logged in user of the banking application, I want to be able to change my preferred method of signing in so that I do not have to use the facial recognition software anymore	Given I am a logged in user, and I want to change my method of signing in, when I check the different methods of signing in and I select the one I want, the system should delete data from my old method and then allow me to use the new selected method.	**Sprint 1**
As a logged-out user of the banking application, I want to update my face after undergoing surgery so that I can log in to the banking application	Given I am a logged-out user and I want to update my face for the facial recognition software, when I press login and the software cannot verify my face, the system should allow me to use my designated password, and then sign me in.	**Sprint 2**
As a logged in user of the banking application, I want to use multiple methods of logging in so that I can log in to the banking app using a variety of methods	Given I am a logged-in user and I want to use multiple methods of logging in, when I check the different methods of signing in the system should provide a list and then allow me to select multiple methods to log in	**Sprint 2**
As an administrator of the banking application, I want to purge data at regular intervals so that I can reduce the risk of hacks or information leaks	Given I am an administrator and I want to purge the data from the facial recognition application, when I check the database, I can select the purge button to delete all information currently stored and then the data should be purged	**Sprint 3**
As an administrator of the banking application, I want to disable the use of facial recognition due to a new piece of software putting users at risk of being hacked so that I can prevent any hack from taking place	Given I am an administrator and I want to disable the use of facial recognition for the application, when I access the software, I can select a disable button to shut down the facial recognition software and then users can use their alternative sign in method	**Sprint 3**

Management Plan

Team	Guide	Roles
Development	This team is split into two groups consisting of the front-end developers and the back-end developers. The aim of this team is to create a user friendly and effective design for the feature to ensure the safe and secure usage of the application as well as to ensure that there are no breaches to the security of the application as a result of the feature created post release. The front-end developers are responsible for the user friendliness and ease of access to the users, creating an effective design to the feature to ensure satisfactory usage to the customers. This involves a satisfactory login page for the users using the facial recognition feature. This further involves allowing the user to access different methods of logging in and the possibility for multiple methods of logging in. The back-end developers are responsible for the coding of the feature, involving the sign in utilising facial verification, the accessibility to administrators for the management of the application and security checks.	Front End Back End
Testing	This team consists of testers for the feature. Testers are responsible for finding bugs and breaches for the feature at hand, including any security risks or breaches that are possible through the feature or any general bugs with the facial recognition.	Testers

Release Plan:

Date	Sprint	Requirements
Week 1 (04/01/2021 – 11/01/2021)	1	- Facial Recognition - Detect dark environment + display bright white screen - Login method selection + remove data
Week 2 (12/01/2021 – 19/01/2021)	2	- Alternative login upon failure - Multiple login methods
Week 3 (20/01/2021 – 26/01/2021)	3	- Data purge button - Disable feature button
Week 4 (20/01/2021 – 26/01/2021)	Testing	- Bug Report - Test Feedback - Fix bugs and issues
Week 5 (20/01/2021 – 26/01/2021)	Release	- Release Feature for application

Communications Plan

Project Name: Facial Recognition Login Project Manager: Kamalpreet Grewal

Beginning Date: 14/12/2020 Completion Date: 27/01/2021

Communication Plan Situation	**Level of Urgency (1-4)**	**Stakeholders**	**Objectives and Goals**	**Frequency**	**Deliverable**
Starting Meeting	4	Management, Developers, Testing Team	Plan introduction and review	Once	- Agenda - Meeting Minutes
Sprint Meeting	2	Management, Developers, Testing Team	Review sprints and sprint progress	Weekly	- Progress - Sprint review - Sprint Retrospective
Testing Team Meeting	3	Testing Team	Test feature and provide feedback to developers	As needed	- Project Test - Bug Report - Developer Feedback - Project Improvements
Project Status Report	3	Management, Developers, Testing Team,	Report project status, activities, progress, costs, issues incurred	Weekly	- Status Report
Project Alpha Test	4	Developers, Testing Team	Developers and Testing Team test the feature to identify bugs and risks and whether the feature is functional for release	Once	- Bug Report - Alpha Test Feedback
Feature Release	4	Management	Release the feature for public use	Once	- Project Released
Project Review and Retrospective	4	Management, Developers, Testing Team	Review the project, project sprints, and identify what went well and improvements to the system	Once	- Project Review - Project Retrospective

Project Complete

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Thank you!