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Project title: Cleft Lip Aesthetics Tool

Aims

The aim of the project is about determining the success of cleft lip and palate surgeries. Through the use of a mobile app, paediatric plastic surgeons should be able to evaluate the aesthetic outcome of the surgery by determining how symmetrical the lips are. The user should be able to draw around the lip region of the target image and then receive a set of symmetry scores, determining the successfulness of the surgery. This would replace the previous, subjective method of having a panel of people determine success.

Objectives

The following objectives need to be accomplished in order to satisfy the project's aims:

- Evaluate the researched options of development tools and choose the best option in order to produce a working multi-platform app.
- Focus on ease of access and uncluttered content to help produce an easy to use app.
- Create an intuitive method of drawing traces around lip regions with a focus on precision to allow for more accurate results.
- Ensure lip tracings and symmetry scores are produced in a format which allows for easier analysis at a later date.

Deliverables

The following deliverables are expected to be produced:

- A fully functional multi-platform application that determines the symmetry of the lips from a patient's image to determine the success of the surgery.
- Fully documented and clear documentation of the app for future development.
- Concise user manual to demonstrate how to use the app.
- An intuitive method of drawing around lip regions of a patient's image to produce a trace for determining success.
- Integrated cloud connectivity with syncing and offline features for the app.
- A simple method to extract and analyse traces and scores of images for future analytical work.
- A final report detailing the planning, methodology and results of the project.

Work plan

The following tasks are expected to be completed under the timeframes shown below:

Project start to early November

Relevant literature review.

Establish main project goals.

- Research potential ideas and solutions to problems.
- Create and refine project goals and requirements.
- Preparation for development through use cases, MoSCoW style requirements, user stories, a Gantt chart and diagrams.
- Simple mock ups of app screens.
- Drafting and submission of the project plan.

Mid November to mid-December

- Development of initial app screens.
- Setup of the cloud which stores images as well as produced traces and symmetry scores.
- Linking of the app to the cloud.

End December to end January

- Development of initial lip drawing features to produce traces.
- Addition of symmetry score calculations from traces to determine surgery success.
- Drafting and submission of the interim report.
- Testing of the features implemented thus far on different platforms.

Early February to mid-March

- Enhanced cloud functionality related to traces and symmetry scores.
- Development of advanced lip drawing features to enhance precision and reliability.
- Addition of offline access and sync features to upload new data to the cloud.
- Further symmetry score features based off multiple lip tracings of a single image.
- Drafting of the final report.

Late March to early April

- Further testing of the system that has been developed.
- Production of a user manual.
- Submission of the final report.