**Client Meeting 05/10/2022 First Meeting Minutes**

* First meeting between our group and client (Jonathon Pleat) took place on 05/10/2022 and lasted about an hour. The following is a rough outline of what was discussed in the meeting
* Agreed to spend 2-3 weeks browsing existing solutions and analysing what they do. Aim to make a PowerPoint (or some document) summarising our market research. Particular focus on any features that current app doesn’t have that are useful
* Idea of app is to track lesions / moles and their change over time in a way that helps identify malignant moles early on to enable effective treatment where skin cancer occurs.
* One far up photo of mole taken to identify mole location. Close up photos then taken to enable a specialist to determine state of mole.
* Signs that mole is dangerous: becomes more irregular, darker, changes colour, size increases by 5mm or more over a couple of months or mole becomes asymmetrical.
* Abcde method summarises signs that indicate mole is dangerous (asymmetry, border, colour, diameter and evolution)
* Agreed to contact team that worked on app last year to be briefed on app and gain access to code / documentation etc.
* Given access to video demo of app that was made by first team who worked on project.
* Ghost image is used as overlay when taking photo to ensure standardisation of photo being taken. Discussed other app features that have already been implemented (e.g., 3d body).
* Big focus for us is standardisation of image. Particularly, the client would very much like us to have a method that provides scale within photos to allow the app to measure the size of the tumour. One suggestion is to get users to take a photo with a coin in frame, to provide a scale for the image.
* Another standardisation that would be helpful is colour normalisation (different lighting conditions in photos make it hard to identify colour changes of tumours). Client stressed that this was a difficult task and that it is not a priority or expected to be implemented. Focus on size standardisation is much more important for project to implement.
* App should have a clinician section. This section should allow clinicians to generate QR codes that the patients may scan. These QR codes should store the email address of the clinician. The idea is that patients scan the QR code to store the email address of the clinician. This allows them to send emails to the clinician (via the app) with their mole photos.
* App should have a feature that prevents wrong sight surgery. When a clinician identifies a mole that needs to be removed, they should take a photo of it using the patient’s app. Thus, when the patient comes in at a later date to have the surgery performed, they can simply show their phone to the surgeon. The surgeon uses the app to identify the correct mole and removes it. This prevents a common error (known as wrong sight surgery) where the surgeon accidentally removes the wrong mole, thus delaying effective treatment of the cancer.
* Clinician section should support a full map feature. A clinician may want to take a photo of every single mole on a patient’s body. This should take about 20 minutes and ensures that all moles are correctly mapped out by clinician.
* Aim is to have a pilot released by end of project. The idea is that the app may even have thousands of users by the end of a two- or so-year period.
* Client says that many people are not highly technologically literature. Elderly people (who are more likely to have cancer) particularly struggle with technology. Hence, ease of use should be central to the app. If possible, tutorial videos should be embedded to make it easy to use.
* App also has an education / charity component which helps users learn about skin cancer and encourages them to donate client’s charity.
* Agreed to explore existing apps and produce some presentation or document summarising them.
* Agreed to meet with last year’s team and become familiar with codebase.
* Once both of these tasks are done, we will meet with client again (in roughly two weeks) to discuss what features the app should have.
* Attached below are the rough notes I took during the meeting (however please don’t read them, as they are only notes. I have simply kept them in for my own sake).
* Chariman of skin cancer charity
* Scoping of 2-3 weeks browsing existing solutions
* Loads of people with moles (some are cancerous, some aren’t)
* Track change of skin lesions over time
* Far away photo to locate mole
* Close up photo of mole for detailed analysis
* Dangerous moles become more irregular, darker, colour changes (red slate, gray), size increases by 5mm or more over a couple of months, becoming asymmetrical.
* Abcde screening system for moles
* Contact team from last year
* Video shows app in action
* Allows you to consistently identify same mole using ghost images
* Problem is irregularity of photos by camera shot
* Parralelex error by camera
* Background ambient light influences mole colour look
* Photos every month
* Gets ghost photo of previous mole to eliminate rotation and distance of camera
* 3d body model for tumour identification
* Upload skin cancer information pages
* Contact previous team and meet to get code and explain what’s up - 1
* Set two people to have a look at android store and look at existing skin cancer apps to monitor moles – 2
* Hoping to put scaling in image. Either get patient to hold a rule in the image so you can see both the mole and the ruler (is there something with a scale in the image). Finding edges / SA of mole. Big thing is looking for some way to scale mole. Look for edges of lesion. Could use coin to scale image for standard size.
* QR code to send photos to hospital
* Clinician section of app to program. Clinician has a QR code that allows patients to send email. So every clinician has a QR code that encodes email address of clinician.
* Clinician section – QR code generator (generate QR code for clinician email address to which to send to ). Right sight surgery subroutine – wrong mole is taken off (wrong sight surgery). E.g. mole on back. Surgeon takes photo of mole that needs to be removed. So when surgeon comes to taking mole off, they can see this photo and take correct mole off back.
* Clinician - full mole mapping service. Mapping of every single mole on body. Take about 20 minutes to do.
* Clinician section, scaling section, constant lighting condition ideally.
* By summer – hoping for a pilot on a few patients.
* Want publishing on android and iOS app store (for free).
* Assume average patient has a learning age of 12 (I.e. just measuring mole may be too difficult).
* Embed lots of little video and make app very easy to use even for non tech savy people.
* Don’t want people to get bored, make it fun to use
* Scars go red , green (change colour). But lighting makes colour change hard to detect. Don’t get bogged down with this one – it’s very hard and is not super important. Think it’s probably two much to program. Have a look at apps for colour correction.
* Encouraged to have somebody to take the photos for the them (but it’s not mandatory). So they should be able to take photo on their own if need be.
* It’s very important to work hard.
* They are going to put advert out once app is live to get people to encourage it’s use. Ambition is thousands of users in a year or two.
* Half of us (2) do market research (ios + android app store), we’ll be reimbursed for any costs. Mole mapping / surveillance. At least 10 or 15 apps out there already. Other 2/3 go to group for last year and discuss source code from last year. Everyone should meet group of last year. Take screenshots of existing apps.
* Meet once these tasks have been done. PowerPoint of market research would be great.