**Requirements**

What human needs are we proposing to address?

* Being able to visualise how their room would look with certain design choices and interact on the fly with many aspects of the room.
* Having the ability to filter through and connect with local decorators who are able to make your design a reality.

What do we want the system (hardware & software) to do?

* Filtering system: so that users can search for decorators within a certain distance, budget, qualifications etc.
* Secure card payments.
* A heavy focus on the augmented reality aspect of visualising and interacting with the interior design of your home.

How do we want the software to perform?

* The app should start up in less than 5 seconds.
* It should appeal to the younger generation of homeowners.
* It should be intuitive and accessible to less technically minded users.
* Real time projection of the augmented reality.

Stakeholders

* Users who want their rooms/houses decorated.
* Painting/decorating companies who want customers to choose them for the job.
* Possibly companies selling furniture or items we could add to a catalogue to visualise in the user’s room.
* See more on Stakeholder’s document and diagram.

Interacting systems

* Payment system
* Augmented reality system (core functionality of the app)
* Built-in messaging system for the users to interact with the decorators (possibly).

Who needs what?

* Users need an intuitive and functional augmented reality system to visualise possible changes to their room.
* The decorating companies need extra customers and a ready-made visual plan to work from.
* Furniture sellers are always after an extra outlet for their goods.

What the System should do?

* Have a functioning intuitive AR system with many design options available.
* Save snapshots of the room to the device.
* Allow the user to send these pictures as well as messages to the decorators via a built-in messaging app.
* Allow the user to locate and filter decorating companies to find the right team for the job after being given back quotes.
* Have a payment system for the user to pay the decorators after the job is complete.

Constraints on the System

* It should run on tablets and large phones.
* It will initially be coded to run on Android.

Data

* Review/rating data on decorators will be non-volatile, accurate and up to date.
* Persistent data in the form of saved snapshot images of the room will be stored on the user’s device.
* Data will be collected on things such as: average spend, age groups of users, number of repeat customers, furniture trends etc.

Social environmental factors

* There will be a sharing aspect of this app, primarily between the user and decorator but also if the user chooses to make their design public they may.
* In order for useful discussions to be had between user and decorator the data must be accurately synced between the two.

User-experience

* The app should be intuitive and frustration-free.
* It should be an enjoyable experience to play around with how the user’s space looks with different designs.

Technical limitations

* To run on tablets etc. Most likely not on a computer as though it would be good, the AR element needing a live video feed most likely wouldn’t work on a PC unless the user was using a non-built in webcam.
* Only available for Android devices initially.
* How realistic will the AR be able to be while not looking clunky and allowing a high level of user interaction?

Software resources

* Payment system/card verification.
* Open source augmented reality code libraries?
* Mobile app libraries.