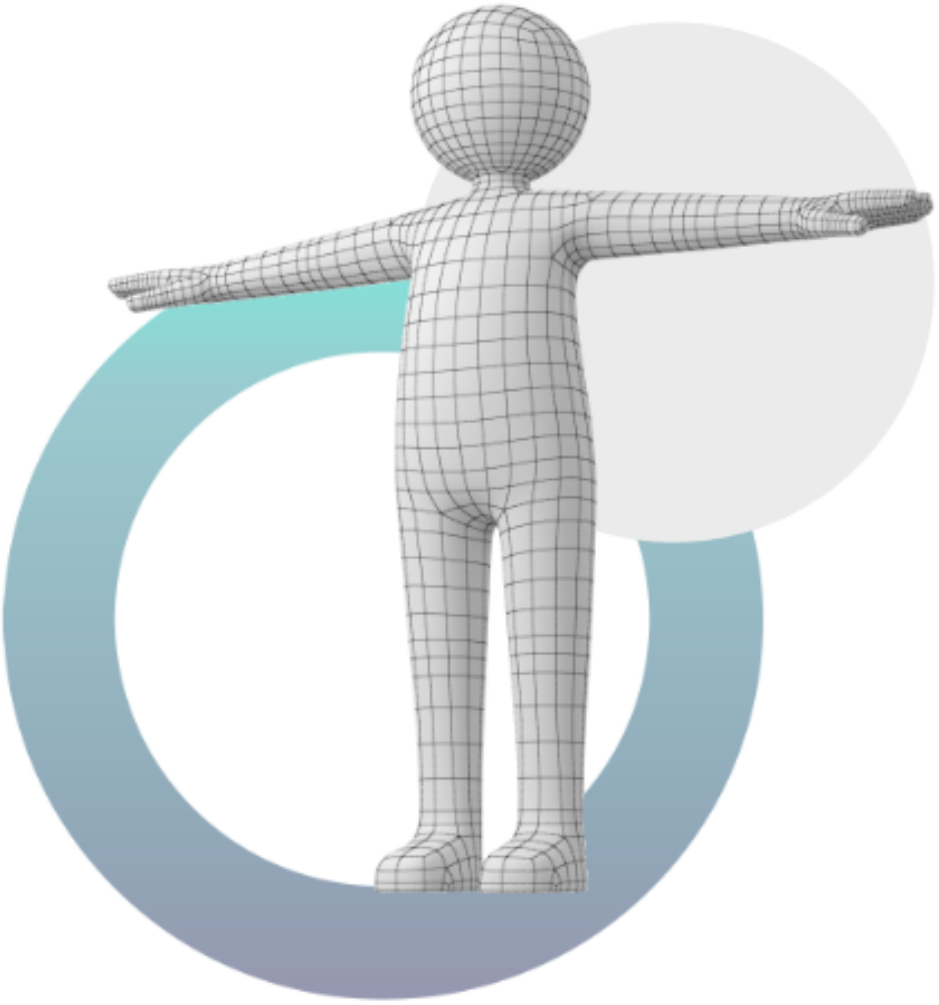
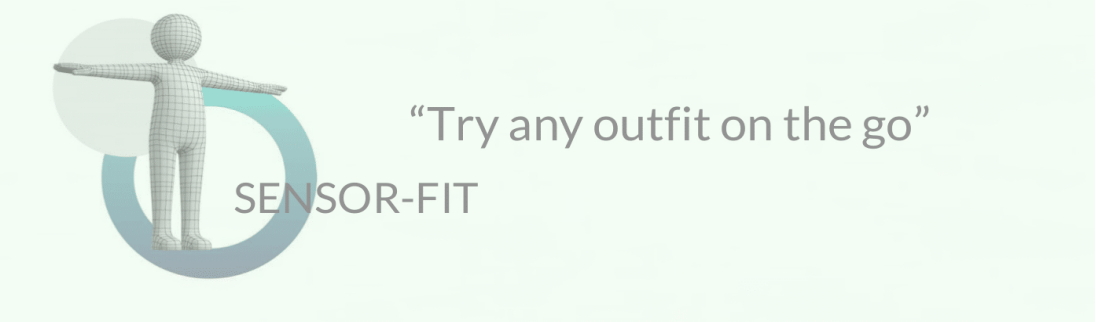


SENSOR-FIT

Sensor-fit
info@sensorfit.com
Paseo de la Castellana, 96
Madrid, Spain

INTRODUCTION



The user is equipped with both the application and a motion tracking suit. The suit must be turned on and be calibrated with the application via Bluetooth before using it. (Use case: Calibration).

Would the suit fail calibrating, the user will be prompt with an error message.
Once calibrated, the user will be able to search for specific clothes and outfits in different brands. They have the option to save it into the “fitting room”. (Use case: Search and Save).

Once they finished searching for clothes, the user can begin trying them out. They’ll have to select a specific outfit and the application will immediately load it into suit they’re physically wearing. The user will have to point their phone camera at the mirror, and the outfit will appear on the phone’s screen, as if the user was wearing it. (Use case: Try on clothes).

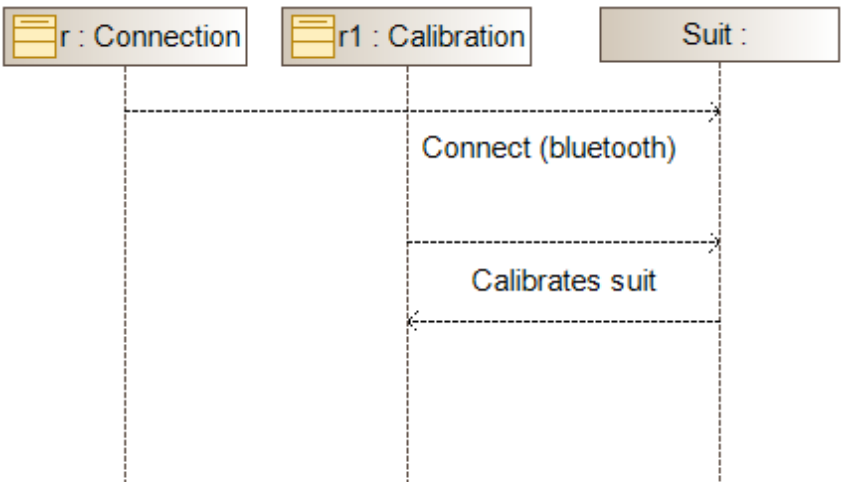
Finally, in case the user is interested in a garment they’re currently simulating, they’ll have the option to buy it through online services such as Zara, Zalando, Adidas among others. (Use case: Buy)

For the application to work, we need clothing brands to provide us with the clothing database and the corresponding measurements.

USE CASES

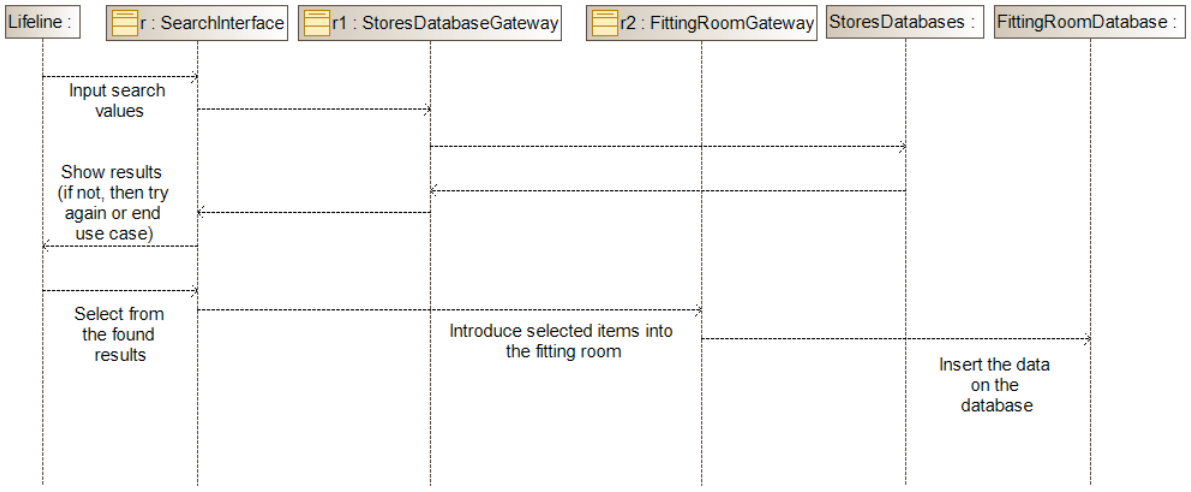
I. Calibration

Name	**Calibration**
Description	The application connects to the suit via bluetooth and calibrates the suit' sensors when opening the application or when the user requires it
Actors	Suit
Preconditions	The app must've launched successfully and suit and bluetooth must be enabled
Postconditions	The suit has to be connected and ready to be used
Main Sequence	**1-** The application enables the bluetooth (if not already enabled) **2-** Search for the suit **3-** Connect to the suit **4-** Calibrate suit sensors
Alternate Sequence	**AC1-** If the application doesn't find the suit, try again or stop the application (prompt an error message)



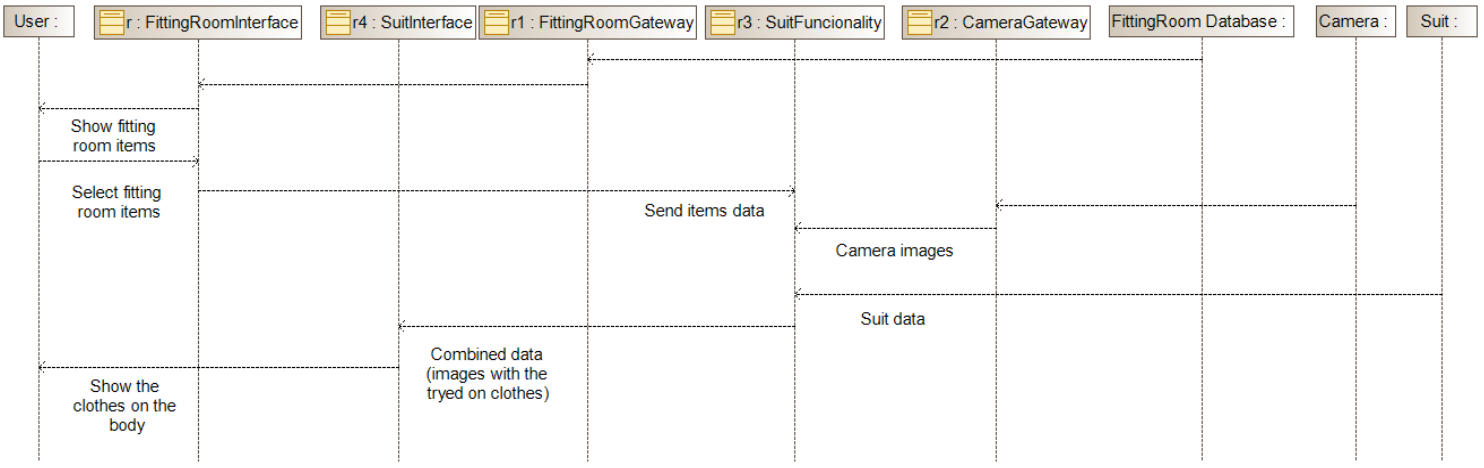
II. Search and save

Name	**Search and save**
Description	Searches for available brands and then for clothes from those brands and saves them in the “fitting room”. The interface for searching will be a searching bar and a feed showing available brands. Once a brand is selected, the app will prompt another feed with the corresponding clothes.
Actors	User, stores databases, fitting room database
Preconditions	The app must’ve launched successfully and suit must be calibrated
Postconditions	The user adds clothes to the fitting room or just ends the search
Main Sequence	**1-** Select a brand from the ones shown or search it **2-** Select clothes from the selected brand (the user can apply filters) **3-** Add clothes to the fitting room
Alternate Sequence	**AC1-** If the brand searched does not exist, search again or exit **AC2-**If the user doesn’t want to add any clothes to the fitting room, then exit **AC3-**Once a garment is added to the fitting room, the user can search again



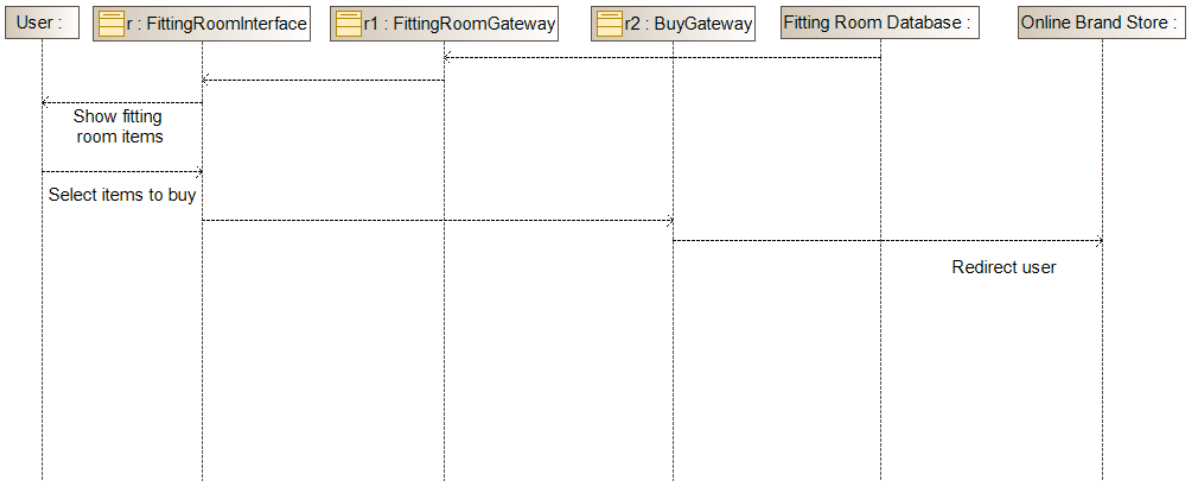
III. Try on clothes

Name	**Try on clothes**
Description	The user selects the garment he wants to try on from the fitting room and the camera is opened. Then the user points the camera to a mirror so the outfit is displayed in the screen.
Actors	User, fitting room database, suit, camera, application
Preconditions	The app must've launched successfully, the suit must be calibrated , the camera must be available and there must be at least one garment in the fitting room.
Postconditions	The user virtually tries on the clothes he or she wants.
Main Sequence	**1-** Select a garment from the ones stored in the fitting room **2-** The camera opens **3-** The application merges the camera images and the sensors information and provides a realistic view of the garment in the body of the user.
Alternate Sequence	**AC1-** If you want to try on other clothes from the fitting room, go again to 1

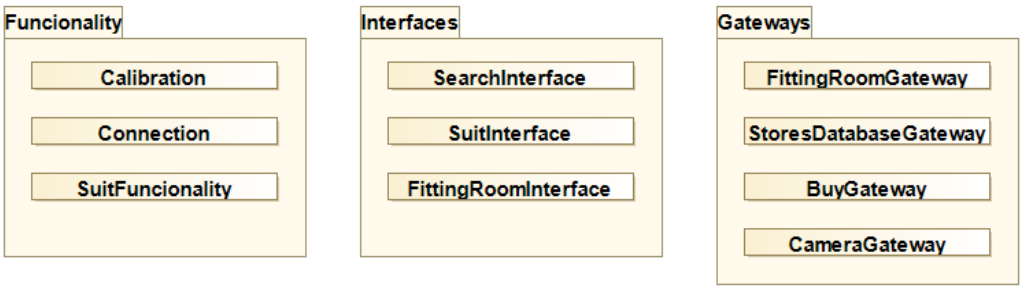


IV. Buy

Name	**Buy**
Description	The user can decide to buy a garment from the fitting room. Then the application redirects the user to the brand store to buy the selected clothes.
Actors	User, fitting room database, online brand store
Preconditions	The app must've launched successfully and there must be at least one garment in the fitting room.
Postconditions	The user is redirected to the brand store
Main Sequence	**1-** Select one or more clothes from the ones stored in the fitting room **2-** The application sends the clothes information to the brand store and the user is redirected to it.



Here, we can see a static view of our whole architecture, divided into packages:



Technologies

DEVELOP APP FOR ANDROID

Java	Very versatile programming language
Android Studio	Software development kit made by Android

DEVELOP APP FOR IOS

Swift	Apple native application for creating apps inside Apple's own environment

DATABASE

SQL	Database management system

GATEWAYS

Payment	PayPal API (an API is a group of software provided by the service to integrate other third party applications with it)
Store Servers	Various APIs to integrate our application with common used store servers such as Nike, Adidas, Zara...
Sensors	Parallax Inc Kit, PIR SENSOR 555-28027
Connectivity	Bluetooth

SECURITY

Firewall	Cloudflare to protect against SQL injection, DDos attacks, Cross Site Scripting and many more dangers
Encryption	Baffle will encrypt our data securely
Penetration testing	Sciencesoft provides penetration testing programs to find out possible vulnerabilities in our software

Non functional requirements

Non functional requirements let us see how our system works, in which way it behaves and interacts with the user. They are needed in our business in order to satisfy the user's expectations. Here are listed the following requirements:

1. **Time restrictions**

Considering a stable internet connection, the application should load the in less than 10 seconds. If not, the user will assume something's not functioning correctly. Once the user has fixed the suit and opened the application, calibration should take less than 8 seconds. All other loading procedures (such as opening the camera or trying on clothes) should take a maximum of 5 seconds to properly execute. The redirection to the chosen store should be fast or else the user might stress and contact support.

2. **Capacity**

It determines how long the app takes to receive a visit from a user. Expecting around 300 users/minute. The capacity will be managed in order to do not collapse the system.

3. **Availability**

The number of each item available will be managed constantly to offer the client an accurate information. We expect 70 users buying an item/minute.

4. **Security for our users**

The purpose is to ensure users that their personal data is safe: Sensitive data isn't distributed among third party mediators; There will not be any sensitive data in backups; Sensitive data will not be stored outside the app's storage system; passwords are not going to be exposed through the interface and finally users will be educated about the risks and prevention methods.

Risk management

Every identified detail regarding risks has been listed below.

Risk Type	Risk Description	Severity	Probability	Level
ESTIMATION	Miscalculated budget	Critical	Occasional	H
ESTIMATION	A module's development is delayed	Critical	Occasional	H
PEOPLE	People might complain that only the app is usable in iOS and Android	Serious	Occasional	M
TECHNOLOGY	Our database might be full	Critical	Remote	M
TECHNOLOGY	The searched brand may not exist in our database	Negligible	Occasional	T
TECHNOLOGY	A blackout	Catastrophic	Remote	H
TECHNOLOGY	The system is down	Critical	Improbable	L
ORGANISATION	A garment may get out of stock or sold out	Serious	Remote	L
TECHNOLOGY	Loss or deletion of information on environment	Catastrophic	Improbable	M
TECHNOLOGY	The connection with the suit may not work properly	Serious	Remote	L
TECHNOLOGY	Pay gateway might not be available	Minor	Remote	T
ORGANISATION	Some developers might be ill	Serious	Remote	L

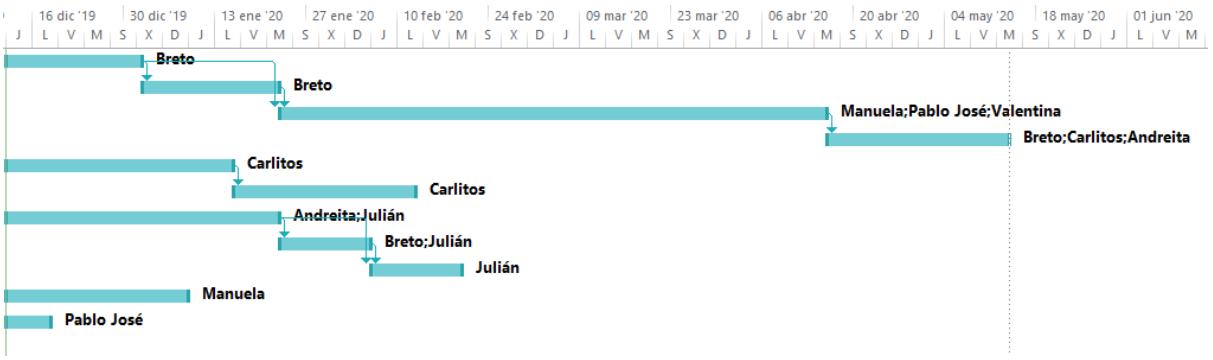
Planning (workers distribution)

For the planning, we have picked some virtual workers who represent our future team. This team will be composed of working, motivated people which have just finished their degrees or who have few years of experience, as we believe that the future belongs to the youth. These virtual workers are:

	Nombre del recurso	Tipo	Iniciales	Tasa estándar	Tasa horas extra
1	Julián	Trabajo	J	11,00 €/hora	11,00 €/hora
2	Manuela	Trabajo	M	11,00 €/hora	11,00 €/hora
3	Valentina	Trabajo	V	11,00 €/hora	11,00 €/hora
4	Pablo José	Trabajo	P	11,00 €/hora	11,00 €/hora
5	Andreita	Trabajo	A	11,00 €/hora	11,00 €/hora
6	Breto	Trabajo	B	11,00 €/hora	11,00 €/hora
7	Carlitos	Trabajo	C	11,00 €/hora	11,00 €/hora

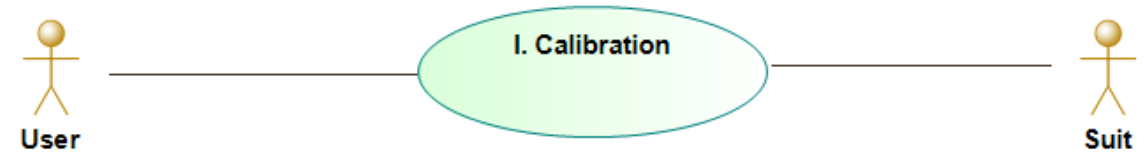
Based on this team and, taking into account our main tasks, we have developed the following planning:

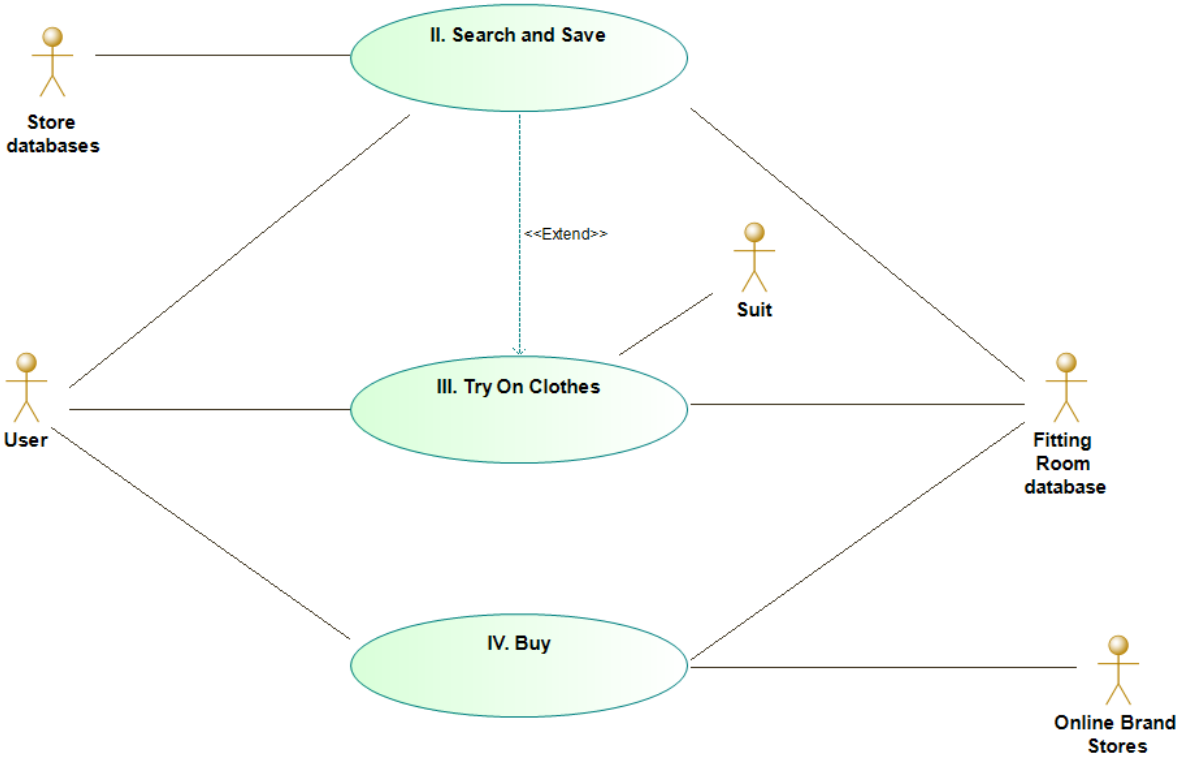
	Modo de	Nombre de tarea	Duración	Comienzo	Fin	Predecesoras	Nombres de los recursos	Costo
1		Conection	15 días	jue 12/12/19	mié 01/01/2(		Breto	1.331,00 €
2		Calibration	15 días	jue 02/01/20	mié 22/01/2(	1	Breto	1.331,00 €
3		SuitFunctionality	60 días	jue 23/01/20	mié 15/04/2(	2;1	Manuela;Pablo José;Valentina	15.873,00 €
4		SuitInterface	20 días	jue 16/04/20	mié 13/05/2(	3	Breto;Carlitos;Andreita	5.313,00 €
5		StoresDatabasesGateway	25 días	jue 12/12/19	mié 15/01/2(		Carlitos	2.211,00 €
6		SearchInterface	20 días	jue 16/01/20	mié 12/02/2(	5	Carlitos	1.771,00 €
7		FittingRoomDatabase	30 días	jue 12/12/19	mié 22/01/2(		Andreita;Julián	5.302,00 €
8		FittingRoomGateway	10 días	jue 23/01/20	mié 05/02/2(	7	Breto;Julián	1.782,00 €
9		FittingRoomInterface	10 días	jue 06/02/20	mié 19/02/2(	8;7	Julián	891,00 €
10		BuyGateway	20 días	jue 12/12/19	mié 08/01/2(		Manuela	1.771,00 €
11		CameraGateway	5 días	jue 12/12/19	mié 18/12/1!		Pablo José	451,00 €
12		TOTAL						38.027,00 €



Use case diagram

Each time the application is booted up, the calibration between the suit and the application must be made. If the suit does not calibrate, an error message appears and the user tries to calibrate it again until it succeed.





Activity diagram