APPENDIX 5 –REQUIREMENTS SPECIFICATION

Contents

Requirements Specification

Key:

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Functional & Non-Functional Requirements

Interfaces

ID	IN01	Requirement type	Non-Functional
Requirement	There will be a built – in wall interface for the control of membership within the centre		
Explanations and Justifications	Primary and further research indicated that there was an issue regarding others using members access codes. This is a way of improving this issue. The built-in feature will avoid any obstruction and therefore a safety hazard.		
Requirement Change	N/A		
References	Appendix- Survey Results Q4		
Date Created	20/03/15	Level of significance	4
Test Criteria	Interface will be fully embedded with no protruding sharp edges.		

ID	IN02	Requirement type	Non-Functional
Requirement	The system will consist of a built- in interface at the reception desk.		
Explanations and Justifications	Primary research indicated that some members encounter technical difficulties using the machinery. The reception interface will have processes in place to ease this issue		
Requirement Change	N/A		
References	Appendix – Survey Results Q10		
Date Created	20/03/15	Level of significance	4
Test Criteria			

ID	IN03	Requirement type	Non-Functional
Requirement	There will be built in interfaces at eye view on the main equipment / fitness machinery (treadmill, rowing machine, cardio machinery)		
Explanations and Justifications	Interview research has indicated that there aren't enough facilities available specific to members about their performance or recommended exercise patterns. It is also indicated that there is a lack of entertainment facilities for exercise. An interface will help to implement this.		
Requirement Change	It was initially suggested that there could be screens erected around the fitness rooms, however this is not specific to each member, and more of public view, which would not recognise each of the members' preferences. A single interface on each machine will add more personalisation specific to the member.		
References	Appendix- Interview Results – Interview 2		
Date Created	20/03/15	Level of Significance	4
Test Criteria	Upon using machinery, screen will be viewable without any restrictions.		

Member Interface Management/ Content

ID	MI01	Requirement type	Non-Functional
Requirement	Each Machinery Interface will have separate pages for different pieces of information and performance		
Explanations and Justifications	Researching through interviews indicated that the information that is currently provided isn't displayed in a very user friendly manner and individuals find it difficult to make sense of the data. The use of separate pages will help create a user friendly environment.		
Requirement Change	Initially it was not indicated how the information was displayed, but just through the use of the interface Interview research showed some members expressing concern about the display possibilities, and so this was adjusted to explain exactly how the information will be viewed.		
References	Appendix – Interview No 9		
Date Created	20/03/15	Level of Significance	2
Test Criteria	At one touch, the required information will be displayed, separate to all other data.		

ID	MI02	Requirement type	Non-Functional
Requirement	There will be an information page displaying individuals' last 10 workouts		
Explanations and Justifications	Primary research indicated that the performance of individuals is not monitored during their stay. This requirement will help individuals to develop more understanding of their workouts.		
Requirement Change	N/A		
References	Appendix- Survey Results Q4		
Date Created	20/03/15	Level of Significance	3
Test Criteria	At one touch, display will show last 10 workouts, starting with the latest workout first.		

ID	MI03	Requirement type	Non-Functional
Requirement	There will be an information page displaying total calories burned		
Explanations and Justifications	Primary research indicated that the performance of individuals is not monitored during their stay. This requirement will help individuals to develop more understanding of their workouts.		
Requirement Change	N/A		
References	Appendix- Survey Results Q4		
Date Created	20/03/15	Level of Significance	3
Test Criteria	At one touch, display will show last Calories burned for the most recent workout..		

ID	MI04	Requirement type	Non-Functional
Requirement	There will be an information page displaying a recommended daily workout		
Explanations and Justifications	Primary research indicated that there is a lack of incentives available to those who have memberships at the gym. This was explained further during interview stages where an individual explained that there is no professional advice given with their membership. This requirement will help to improve this.		
Requirement Change	N/A		
References	Appendix- Survey Results Q4 , Appendix- Interview no 2		
Date Created	20/03/15	Level of Significance	3
Test Criteria	At one touch, display will display a recommended workout, with all necessary detail.		

ID	MI05	Requirement type	Non-Functional
Requirement	There will be an information page displaying average time spent exercising per week along with a list of the last 10 exercise times.		
Explanations and Justifications	Primary research indicated that the performance of individuals is not monitored during their stay. This requirement will help individuals to develop more understanding of their workouts.		
Requirement Change	N/A		
References	Appendix- Survey Results Q4		
Date Created	20/03/15	Level of Significance	3
Test Criteria	At one touch, display will display a recommended workout, with all necessary detail.		

ID	MI06	Requirement type	Non-Functional
Requirement	There will be an information page displaying a progress graph based on times and performance during workout.		
Explanations and Justifications	Primary research indicated that the performance of individuals is not monitored during their stay. This requirement will help individuals to develop more understanding of their workouts.		
Requirement Change	N/A		
References	Appendix- Survey Results Q4		
Date Created	20/03/15	Level of Significance	3
Test Criteria	At one touch, interface will display graph showing real time results, including the most recent performance reviews, refreshing data every 5 minutes to guarantee up to date information.		

ID	MI07	Requirement type	Non-Functional
Requirement	There will be an information page displaying the weight gains and losses of an individual throughout membership.		
Explanations and Justifications	Primary research indicated that the performance of individuals is not monitored during their stay. This requirement will help individuals to develop more understanding of their workouts.		
Requirement Change	N/A		
References	Appendix- Survey Results Q4		
Date Created	20/03/15	Level of Significance	3
Test Criteria	At one touch, interface will display the current weight of the individual and the change in weight from previous workouts.		

ID	MI08	**Requirement** type	Non-Functional
Requirement	There will be an information page displaying the heart rate of the individual through the use of each piece of machinery.		
Explanations and Justifications	Primary research indicated that the performance of individuals is not monitored during their stay. This requirement will help individuals to develop more understanding of their workouts. Primary research also indicated that 59% individuals have not felt safe using the equipment, which was explained further during interview, that they are unaware if how much they are exercising is safe for their body, the heart rate monitor information will help individuals be aware of this.		
Requirement Change	N/A		
References	Appendix- Survey Results Q4		
Date Created	20/03/15	Level of **Significance**	3
Test Criteria	At one touch, interface will display the heart rate of an individual through entire visit and the fluctuations. Page will refresh every 2 minutes to present real time information.		

ID	MI09	**Requirement type**	Functional
Requirement	Interface will allow an alert sending function to the reception staff interface		
Explanations and Justifications	Primary research indicated that 70% of individuals experience technical difficulties during their stay. Interviews helped to explain that individuals would prefer it If they didn't have to waste their time reporting technical problems to staff, and so this alert will help to reduce this, allowing staff to be aware of when a machine needs attention.		
Requirement Change	N/A		
References	Appendix- Survey Results Q10		
Date Created	20/03/15	**Level of Significance**	2
Test Criteria	At one touch, interface send alert to reception interface. Alert will be displayed within <1 second. Alert will display over any other applications open on interface.		

Software Interfaces

ID	SI01	Requirement type	Non-Functional
Requirement	There will be a main database for the recording and storing of performances for each member from each machine/ smart equipment.		
Explanations and Justifications	Primary research indicated that the performance of individuals is not monitored during their stay. This requirement will help to store the information of individuals to develop more understanding of their workouts.		
Requirement Change	N/A		
References	Appendix- Survey Results Q		
Date Created	20/03/15	Level of Significance	5
Test Criteria	All information will be retrievable from the database at the fitted interfaces		

ID	SI02	Requirement type	Functional
Requirement	Database will order the performance reviews of all hardware data received to indicate which members may be pushing it too far		
Explanations and Justifications	Primary research indicated that the performance of individuals is not monitored during their stay. This requirement will help to identify those who are struggling to reduce the risk of health problems.		
Requirement Change	N/A		
References	Appendix- Survey Results Q		
Date Created	20/03/15	Level of Significance	4
Test Criteria	All information will be ordered from the most risky members to the most healthy members.		

ID	SI03	Requirement type	Non-Functional
Requirement	There will be Up to 2000 member fingerprints to be stored on the main system database for the fitness site		
Explanations and Justifications	Initial research identified the average number of members at a fitness site as 1357 members per site. Therefore from this research having 2000 available thumbprints for users will mean that an average sized fitness site will be able to accommodate all members into the system.		
Requirement Change	N/A		
References	Final Report – Sampling		
Date Created	20/03/15	Level of Significance	5
Test Criteria	There must be the same amount of time taken for each member to access the system. All members should be able to access the same information and the database should only be able to recognise one thumbprint per member. The system should reject multiple thumbprints for one member.		

ID	SI04	Requirement type	Functional
Requirement	The information of membership details and equipment information will be stored on a main database		
Explanations and Justifications	The storing of membership details is essential to enable a smooth running of the system. There must be a central database for storage and this information must be saved or all data from the system will be lost.		
Requirement Change	N/A		
References	N/A		
Date Created	20/03/15	Level of Significance	4
Test Criteria	All member information can be accessed from the database to support the interfaces involved in the system.		

ID	SI05	Requirement type	Functional
Requirement	When attempting to use the interface, there must be an instant screen light up and display.		
Explanations and Justifications	As no analysis of information is required for this task, the display should be instant and real time. This will ensure that in a professional service environment, the system can be used in link with the fast paced fitness environments.		
Requirement Change	N/A		
References	N/A		
Date Created	20/03/15	Level of Significance	4
Test Criteria	Lightup and display should take no more than 1 second.		

Hardware / Machinery Interfaces

ID	HI01	Requirement type	Non-Functional
Requirement	Hardware interfaces will have fingerprint scanners for membership detection		
Explanations and Justifications	As stated in the results of primary research, there have been comments made about the secureness of each membership. The fingerprint scanners in place will ensure that no other individual has access to a member's information, apart from the correctly identified user.		
Requirement Change	N/A		
References	Appendix- Survey results Q4		
Date Created	20/03/15	Level of Significance	3
Test Criteria	Thumbprint should be recognised correctly to the correct member. Relevant information to that member should be available.		

ID	HI02	Requirement type	Functional
Requirement	The system will send Bluetooth alert to user device when machinery is free		
Explanations and Justifications	According to primary research, the survey results show that the number of people trying to use the machinery is a concern with 38% of patricipants saying they find this an issue. Interviews with members showed that they would like to know when each piece of machinery is available, to avoid wasting time walking around the centre to check.		
Requirement Change	N/A		
References	Appendix – Survey Results Q10, Interview Results Interview 2		
Date Created	20/03/15	Level of Significance	2
Test Criteria	Instant alert arrives at member's device when machine is free. Instant alert when that machine becomes unavailable.		

ID	HI03	Requirement type	Functional
Requirement	Calorie burning monitors will send calorie data to central database and membership interface		
Explanations and Justifications	Primary research indicated that the performance of individuals is not monitored during their stay. This requirement will help to store the calories burnt so that members can identify if they have reached their personal goals.		
Requirement Change	N/A		
References	Appendix- Survey results Q8		
Date Created	20/03/15	Level of Significance	3
Test Criteria	The database will update every 3 minutes and the latest member information will be recorded and saved to each member record.		

Membership

ID	M01	Requirement type	Non-Functional
Requirement	Room access interface into wall with built in fingerprint scanner for membership detection		
Explanations and Justifications	Interview research showed that there was a great need for the security of membership, as the older technical codes could be stolen and used by other individuals.		
Requirement Change	N/A		
References	Appendix – Interview 6		
Date Created	20/03/15	Level of Significance	2
Test Criteria	The built in access will detect the correct user to the site with their unique thumbprint and allow access to the correct users .		

ID	M02	Requirement type	Functional
Requirement	Membership detection will record time before logout		
Explanations and Justifications	Primary research indicated that the performance of individuals is not monitored during their stay. This requirement will help to store the time a member spends working out to identify if they have reached any personal goals.		
Requirement Change	N/A		
References	Appendix – Survey results Q8		
Date Created	20/03/15	Level of Significance	1
Test Criteria	Thumbprint login will begin membership timer, whilst thumbprint logout will stop this timer.		

ID	M03	Requirement type	Functional
Requirement	Membership detection will push membership usage times to main database		
Explanations and Justifications	Primary research indicated that the performance of individuals is not monitored during their stay. This requirement will help to store the time a member spends working out to identify if they have reached any personal goals.		
Requirement Change	N/A		
References	Appendix- Survey results Q8		
Date Created	20/03/15	Level of Significance	3
Test Criteria	The recorded workout times will be accessible on the database, and any interfaces accessible to that member.		

ID	M04	Requirement type	Non-Functional
Requirement	A membership code will be an alternative protection for accessing of personal data		
Explanations and Justifications	It was identified during interviews that the initial requirement of a thumbprint scanner only could present technical difficulties, and in the case of an emergency personal data may need to be accessed without the thumbprint option. This requirement will help to fix the concerns brought up during interview.		
Requirement Change	This requirement was adjusted due to concerns raised at interview.		
References	Appendix- Interview 6		
Date Created	20/03/15	Level of Significance	1
Test Criteria	Code will override the thumbprint scanner and provide access in case of an emergency		

Additional Hardware /Machinery

ID	AM01	Requirement type	Functional
Requirement	Hardware and fitness machinery will automatically adjust its settings based on the individual member preferences.		
Explanations and Justifications	It was stated during additional research, through the use of interviews that individuals like to attend fitness sites that allow them to exercise in a quick and easy manner. Individuals have commented that it can sometimes be a time consuming process to have to adjust the settings of the machinery, for example, changing the weights on lifting equipment. This requirement will help to speed up the process of using machinery such as this.		
Requirement Change	N/A		
References	Appendix- Interview 4		
Date Created	20/03/15	Level of Significance	3
Test Criteria	Settings will be correctly adjusted specific to the member identified.		

ID	AM02	Requirement type	Functional
Requirement	The system will allow the user to have the ability to use machinery without interfaces		
Explanations and Justifications	This was a requirement built through concerns raised through interview. Individuals expressed that some members may just want to use the machinery without the use of the embedded systems, as were only interested in exercise and nothing else, and so this requirement allows for this to be possible.		
Requirement Change	Initially the requirement was for the use of the machinery using the options available on the interface, however this raised concerns and so was adjusted in accordance with these concerns.		
References	Appendix- Interview 7		
Date Created	20/03/15	Level of Significance	4
Test Criteria	Machinery will remain turned on when built in interface is shut down		

Additional Hardware /Machinery

ID	AM03	Requirement type	Functional
Requirement	Swimming Lap counter device will push lap data to main database		
Explanations and Justifications	It was expressed during interview that it would be useful for swimming members to have access to previous lap counts from the lap counting device. This requirement will enable the storing of the data to the main database, for access to members from their accessible interfaces.		
Requirement Change	N/A		
References	Appendix- Interview 9		
Date Created	20/03/15	Level of Significance	3
Test Criteria	Database will update every 2 minutes and recent lap counts will be updated		

ID	AM04	Requirement type	Functional
Requirement	Smart weight lifting equipment to measure weight lifting performance in real time		
Explanations and Justifications	During further research, Interview explained that being unaware of how a lift could be damaging your arm can be extremely dangerous. This requirement will help to identify if the member is lifting in a sensible manner.		
Requirement Change	This was not mentioned in the initial list of requirements; however was an additional requirement added after further investigation to the survey results.		
References	Appendix – Interview 4		
Date Created	20/03/15	Level of Significance	3
Test Criteria	Every lift will be detected by machine and respond with real time results.		

ID	AM05	Requirement type	Functional
Requirement	Weight lifting equipment to send performance data to main database and membership interface		
Explanations and Justifications	Primary research indicated that the performance of individuals is not monitored during their stay. This requirement will help to store the weight lifting performance to identify if they have reached any personal goals.		
Requirement Change	N/A		
References	Appendix- Survey Results Q8		
Date Created	20/03/15	Level of Significance	
Test Criteria			

ID	AM06	Requirement type	Functional
Requirement	Water machine to send Bluetooth alert to reception desk when water running low		
Explanations and Justifications	It was mentioned in more detail during interview, that members find it frustrating that staff do not realise that the water machines are empty and so these are not refilled. This requirement will help to solve this.		
Requirement Change	N/A		
References	Appendix- Interview 8		
Date Created	20/03/15	Level of Significance	2
Test Criteria	Alert sent in <1second when water machine is empty		

ID	AM07	Requirement type	Functional
Requirement	Embedded sensors in hand sanitizers		
Explanations and Justifications	This was added through the interview process that took place during my research. It was mentioned as a health concern, as the amount of sweat that is left behind on equipment from different members can be excessive, and the hands on use of soap can add further dirt to the member. The sensors will allow an individual to wash their hands without coming into contact with the hardware.		
Requirement Change	This was not categorised as an initial requirement, however was developed through further research.		
References	Appendix –Interview 8		
Date Created	20/03/15	Level of Significance	2
Test Criteria	Hand will be detected by senses after <1 second of being in range. Sensor will trigger disinfectant hand wash.		

ID	AM08	Requirement type	Functional
Requirement	Scales to monitor weight of individuals		
Explanations and Justifications	From the follow up research, interviews identified that particular users would like to be constantly aware of their weight and for this to become an available system in the fitness site.		
Requirement Change	N/A		
References	Appendix – Interview 7		
Date Created	20/03/15	Level of Significance	3
Test Criteria	Scales will display the weight in KG		

ID	AM09	Requirement type	Functional
Requirement	Scales to send weight data of member to database wirelessly		
Explanations and Justifications	From the follow up research, interviews identified that particular users would like to be constantly aware of their weight and for this to become an available system in the fitness site.		
Requirement Change	Initially, the weight of the individual to be shown was an initial requirement, however during interviews it was identified that storing this data would help improve the members' experience and performance.		
References	Appendix – interview 7		
Date Created	20/03/15	Level of Significance	4
Test Criteria	Database will refresh every 3 minutes and the most recent weights will be recorded in the correct members records		

ID	AM10	Requirement type	Functional
Requirement	Pressure sensitive flooring to monitor the balance of an individual		
Explanations and Justifications	During the research stages, it was indicated that particular individuals would like their performance to be monitored in fitness classes. This will help users to understand and learn from the classes they attend.		
Requirement Change	This was added as a requirement after discussion at interview stages of research.		
References	Appendix- Interview 6		
Date Created	20/03/15	Level of Significance	
Test Criteria	Flooring system will be able to detect the positioning of individuals and their applied pressure.		

ID	AM11	Requirement type	Functional
Requirement	Smart tennis equipment to monitor shots of players		
Explanations and Justifications	Primary research indicated that the performance of individuals is not monitored during their stay. This requirement will help to store the weight lifting performance to identify if they have reached any personal goals.		
Requirement Change	This was added as a requirement after interview research		
References	Appendix- Interview 10		
Date Created	20/03/15	Level of Significance	
Test Criteria	Equipment will be able to detect the quality of shot and provide real time data.		

Connectivity

ID	C01	Requirement type	Functional
Requirement	System will allow the connectivity of facilities and devices securely and wirelessly.		
Explanations and Justifications	This will allow the communication between the many small systems and the central database and of course any other devices. The secure connection is required to ensure safety of the connected devices, and to avoid external users trying to access the system.		
Requirement Change	N/A		
References	N/A		
Date Created	20/03/15	Level of Significance	5
Test Criteria			

ID	C02	Requirement type	Functional
Requirement	System will be permanently connected to the Wi-Fi of the gym / leisure centre company		
Explanations and Justifications	Having a permanent connection to the company WIFI is essential to ensure the company can run smoothly along with the pervasive environment. This is essential to ensure the company can remain professional without connection difficulties.		
Requirement Change	N/A		
References	N/A		
Date Created	20/03/15	Level of Significance	5
Test Criteria	Strong connection with good signal at all times.		

System control

ID	SC01	Requirement type	Functional
Requirement	When exiting sleep mode, or re-entering the system, the system will remember the most recent activities and re-load these		
Explanations and Justifications	This will help to keep the most recent material accessed on the interface to be displayed first. This is likely to be the application or page of information that the member is most interested in.		
Requirement Change	This was brought up during interview, where an individual expressed their interest in particular aspects of the system only, and required this to be the most accessible information		
References	Appendix- Interview no 10		
Date Created	20/03/15	Level of Significance	3
Test Criteria	Upon one touch of the interface, interface will display most recent activity		

ID	SC02	Requirement type	Functional
Requirement	Members can use the system at the same time and run processes on separate interfaces with different membership access logins and preferences.		
Explanations and Justifications	Due to the nature of this project, and the environment that it would be functioning in, if implemented, this requirement would have to be essential. This will enable many of the members and staff of a particular company to have access of the system.		
Requirement Change	N/A		
References	N/A		
Date Created	20/03/15	Level of Significance	5
Test Criteria	Many members can access all available aspects of the system at once		

ID	SC03	Requirement type	Functional
Requirement	All hardware will have built in voice recognition to control the interface hands free		
Explanations and Justifications	It was mentioned in interviews that this requirement was considered an essential feature. It was indicated that voice recognition would ease the use of using for example, a treadmill, to command the machine to adjust its settings without having to stop and adjust the system by hand.		
Requirement Change	This requirement was later added after discussion at interview		
References	Appendix- Interview 5		
Date Created	20/03/15	Level of Significance	3
Test Criteria	Voice command will prompt the relevant adjustments correctly		

ID	SC04	Requirement type	Functional
Requirement	Personal performance data monitored by machinery will be pushed to the smart device of the fitness instructor		
Explanations and Justifications	Primary research indicated that the performance of individuals is not monitored during their stay. This requirement will help to store the weight lifting performance to identify if they have reached any personal goals. Individuals have stated that they want their performance pushed to their personal trainers for extra fitness support.		
Requirement Change	N/A		
References	Appendix- Interview 3		
Date Created	20/03/15	Level of Significance	4
Test Criteria	Summary of performance will arrive at fitness instructor's smartphone		

ID	SC04	Requirement type	Functional
Requirement	Remote controlling to lock machinery		
Explanations and Justifications	It was indicated during research stages that users find it difficult to access machinery along with a busy schedule and workload. This function will help to improve this.		
Requirement Change	N/A		
References	Appendix- Interview 2		
Date Created	20/03/15	Level of Significance	4
Test Criteria	Machinery will lock instantly when prompted.		

Temperature and lighting control

ID	TC01	Requirement type	Functional
Requirement	The system will monitor heat radiance and temperature		
Explanations and Justifications	In primary research, it was indicated that 67% of members feel that the temperature is not regulated during their stay and commented that it gets too hot for them to exercise. Introducing this function will help to improve this current issue.		
Requirement Change	N/A		
References	Appendix – Survey Results Q9		
Date Created	20/03/15	Level of Significance	4
Test Criteria	Heat radiance detectors will pick up on the radiance of members around the site.		

ID	TC02	Requirement type	Functional
Requirement	System to send signals to air conditioning to adjust temperature in accordance to heat radiance		
Explanations and Justifications	In primary research, it was indicated that 67% of members feel that the temperature is not regulated during their stay and commented that it gets too hot for them to exercise. Introducing this function will help to improve this current issue.		
Requirement Change	N/A		
References	Appendix – Survey Results Q9		
Date Created	20/03/15	Level of Significance	4
Test Criteria	Heat radiance will be detected and when temperature reaches above 25 degrees Celsius the air conditioning will adjust accordingly, to set back to standard room temperature.		

Temperature and lighting control

ID	TC03	Requirement type	Functional
Requirement	The system will send data wirelessly to reception interface of heat radiation in all rooms		
Explanations and Justifications	Safety of individuals in a professional environment is essential to its owners and managers. Regulating the temperature will help to reduce member complaints, as this was stated that this was a common complaint (expressed by receptionist during interview)		
Requirement Change	N/A		
References	N/A		
Date Created	20/03/15	Level of Significance	4
Test Criteria	Data will be accessible on the reception interface at a consistent rate		

ID	TC04	Requirement type	Functional
Requirement	Room light sensors to automatically adjust the interface screen brightness		
Explanations and Justifications	It was expressed as a concern during when conducting further research that the interfaces may be difficult to read as the lighting differs around the fitness sites. The room lighting sensors will be able to indicate when the brightness needs adjusting		
Requirement Change	This was added later after discussion during interview.		
References	Appendix- Interview 3		
Date Created	20/03/15	Level of Significance	3
Test Criteria	Human readable interfaces. When lighting gets darker, interface brightness gets higher. When room lighting gets lighter, interface brightness dims		

ID	TC05	Requirement type	Functional
Requirement	Room light sensors will automatically adjust the fitted light intensity in the room		
Explanations and Justifications	Further research (interviews) suggested that the intensity of lighting in some rooms was too extreme and a waste of energy, damaging the environment. This requirement will help to improve this.		
Requirement Change	N/A		
References	Interview 3		
Date Created	20/03/15	Level of Significance	3
Test Criteria	Lighting will reduce in rooms where there is a substantial amount of daylight.		

Fitness Control

ID	FC01	Requirement type	Non-Functional
Requirement	Running fitness machinery with built in trackers for performance improvement		
Explanations and Justifications	Primary research indicated that the performance of individuals is not monitored during their stay. This requirement will help to store the time a member spends working out to identify if they have reached any personal goals.		
Requirement Change	N/A		
References	Survey Results- Q8		
Date Created	20/03/15	Level of Significance	3
Test Criteria	Speed, pressure, and intensity will generate real time data.		

ID	FC02	Requirement type	Functional
Requirement	Weight machines will automatically measure the lifting exercise and assess the quality of the lift.		
Explanations and Justifications	An interviewee expressed how useful this tool would be, by providing guidance on the best way to lift weights and identify the dangers of a bad lift.		
Requirement Change	This requirement was added in response to comments made during further interview research.		
References	Appendix- Interview no 4		
Date Created	20/03/15	Level of Significance	3
Test Criteria	Speed, pressure, and intensity will generate real time data.		

ID	FC03	Requirement type	Functional
Requirement	All performance measurements and data retrieved from machinery will be sent wirelessly to the central database		
Explanations and Justifications	If the process did not occur wirelessly, members would be at a high risk of danger as there would need to be fitted wires throughout the site.		
Requirement Change	N/A		
References	N/A		
Date Created	20/03/15	Level of Significance	5
Test Criteria	Assuming a good signal strength, the data will be received almost immediately.		

Health & Safety

ID	HS01	Requirement type	Functional
Requirement	Machine alerts signalled will push Bluetooth alarm to the reception interface		
Explanations and Justifications	Primary research identified that 70% of individuals have technical difficulties when using machinery. Further research into this indicated that there is insufficient staff help in relation to this. This requirement will help to improve this standing issue.		
Requirement Change	N/A		
References	Appendix- Survey results Q10		
Date Created	20/03/15	Level of Significance	4
Test Criteria	Reaction to machine fault in <1 second. Alert appears on interface in <1 second after reaction.		

ID	HS02	Requirement type	Functional
Requirement	Heart rate monitors will retrieve real time data about the members heart rate.		
Explanations and Justifications	21% of participants attend the gym for health reasons. This means that the companies that have these particular members should be aware of when they are at danger whilst exercising in the site. Primary research also indicated that the performance of individuals is not monitored during their stay. This requirement will help to store the time a member spends working out to identify if they have reached any personal goals.		
Requirement Change	N/A		
References	Survey Results Q5		
Date Created	20/03/15	Level of Significance	3
Test Criteria	Heart rate monitor displays correct heart rate in accordance with the member's pulse		

ID	HS03	Requirement type	Functional
Requirement	Health and Heart rate alerts detected will push Bluetooth alarm to the fitness instructors smartphone device		
Explanations and Justifications	21% of participants attend the gym for health reasons. This means that the companies that have these particular members should be aware of when they are at danger whilst exercising in the site. Primary research also indicated that the performance of individuals is not monitored during their stay. This requirement will help to store the time a member spends working out to identify if they have reached any personal goals.		
Requirement Change	N/A		
References	Survey Results Q5		
Date Created	20/03/15	Level of Significance	4
Test Criteria	Alert arrives at device in <1 second		

Entertainment

ID	E01	Requirement type	Non-Functional
Requirement	Machinery interfaces will have interactive gaming application available		
Explanations and Justifications	Secondary research indicated that members feel that exercising is boring and there should be new ways to encourage fun workouts. Exercise based interactive games will allow members to do something fun whilst they get fit.		
Requirement Change	N/A		
References	Appendix- Interview 5		
Date Created	20/03/15	Level of Significance	2
Test Criteria	Alert arrives at device in <1 second		

ID	E02	Requirement type	Non-Functional
Requirement	Machinery interfaces will have live TV interfaces.		
Explanations and Justifications	Secondary research indicated that members feel that exercising is boring and there should be new entertainment systems that can be specific to each member..		
Requirement Change	N/A		
References	Appendix- Interview 5		
Date Created	20/03/15	Level of Significance	2
Test Criteria	TV signal will be good strength and interfaces will display current channel guide		

ID	E03	Requirement type	Non -Functional
Requirement	Machinery and fitness suites will have wireless headphone capability		
Explanations and Justifications	Secondary research indicated that members feel that exercising is boring and there should be new entertainment systems that can be specific to each member. Wired headphone systems could be a danger to those who are in humid areas or are moving very quickly.		
Requirement Change	N/A		
References	Appendix- Interview 9		
Date Created	20/03/15	Level of Significance	2
Test Criteria	Headphones will respond in <1 second after sound selection.		

ID	E04	Requirement type	Non-Functional
Requirement	Machinery and fitness suites will have skype/ video call capability		
Explanations and Justifications	Secondary research indicated that members feel that exercising is boring and there should be new entertainment systems that can be specific to each member. Members can use this facility to get in touch with not only family and friends but also personal trainers and fitness instructors.		
Requirement Change	N/A		
References	Appendix – Interview 5		
Date Created	20/03/15	Level of Significance	1
Test Criteria	Video call signal will be good strength and interfaces will display video call.		

Stand Alone Processes

ID	SA01	Requirement type	Functional
Requirement	Lockers will enable a one touch open and one touch close system with fingerprint scanner		
Explanations and Justifications	Primary and secondary research has highlighted security problems in relation to their belongings. This will avoid breaches of security and put the members at ease that their belongings are safe.		
Requirement Change	N/A		
References	Appendix – Interview 1 Survey Results Q4		
Date Created	20/03/15	Level of Significance	4
Test Criteria	Lockers will open at one touch and close at one touch.		

ID	SA02	Requirement type	Functional
Requirement	Administrator to have access to all of the data within database at single touch		
Explanations and Justifications	Maintenance of the system may be necessary, and members' personal details may need to be adjusted later on. This will allow access for this to occur.		
Requirement Change	N/A		
References	N/A		
Date Created	20/03/15	Level of Significance	5
Test Criteria	All data of each member will be displayed in <1 second in chronological order		

ID	SA03	Requirement type	Functional
Requirement	System must allow the user to deactivate voice control		
Explanations and Justifications	Some individuals stated that, while a pervasive environment is extremely useful, voice control may interfere with their workout, and wanted this as an optional requirement.		
Requirement Change	This was later added as a requirement after interviews were held.		
References	Appendix- Interview 7		
Date Created	20/03/15	Level of Significance	2
Test Criteria	On deactivation, commands will not prompt the machinery to adjust its settings.		

ID	SA03	Requirement type	Functional
Requirement	The system must allow machinery to be locked for a duration of 15 minutes.		
Explanations and Justifications	It was indicated during research stages that users find it difficult to access machinery along with a busy schedule and workload. This function will help to improve this.		
Requirement Change	This was added as a requirement after request during interview.		
References	Appendix- Interview 7		
Date Created	20/03/15	Level of Significance	2
Test Criteria	Machinery should unlock straight after a 15 minute period.		

ID	SA03	Requirement type	Functional
Requirement	System will provide the ability for warning alerts to be muted where needed		
Explanations and Justifications	Some individuals stated that, while a pervasive environment is extremely useful, additional features may interfere with their workout, and wanted this as an optional requirement. Fitness instructor mentioned that this feature may also sometimes interfere with other classes they are running.		
Requirement Change	This was later added as a requirement after interview		
References	Appendix- Interview 11		
Date Created	20/03/15	Level of Significance	2
Test Criteria	Warning alerts will not alert sound or a notification when muted.		