**Functional Requirements**

1. **User accounts**

A user may be able to access some basic functions before having to sign in to the system however they must be both registered and signed in to be able to record their sports data and get personal feedback.

* When the user opens the application they will be presented with a home screen with the options to sign in or continue as guest.
* Users can choose the option ‘forgotten password’.
* Users should sign in to their accounts before they can play virtual sports with other users or AI.
* Users are able to choose if they want to allow the system to collect their biological information during playing virtual sports to improve service.

1. **Sports Security**

All users need to play virtual sports in a safe environment which is ensured by the system, and even in the fierce virtual competition will not be injured.

* Users should be reminded of checking their surroundings in order to play in a safe environment.
* Users’ real-time actions and movements must be monitored by the system during playing.
* Users’ playing should be paused when any obstacle is detected in the user's motion trajectory.
* Users are able to get advice from the system on moderate exercise plans according to personal health data.

1. **Virtual Playing**

Users are able to play sports with other users or AI players in a virtual environment.

* Users are able to play sports from a variety of different devices.
* How data is collected will change according to the device.
* Users are able to play different types of exercise in different virtual sports venues.
* Users can get feedback from the system.
* Feedback based on users’ specific interactions with the sports arena.

1. **Entertainment**

Users are able to have more fun by playing different sports games and accessing the Points/Ranked system provided by the application.

* Users can access the Points/Ranked system by getting points allocated by the system.
* Users’ points are based on how accurately their movements match the criteria.
* Users can get their ranks assigned by the system.
* Users’ ranks depend on how many points they gathered.
* Users of similar ranks can compete against each other.

1. **Social Dancing**

Users from all over the world can dance together in a virtual environment provided by the system and they can add each other to their friends' list.

* Users can customise their avatars.
* Users can present their avatars to other users.
* Users’ dance movements can be simulated in the virtual environment in real time.
* Users’ dance movements can be presented to other users.
* Users can get interactive feedback from the system.

1. **Feedback and improvement**

Users can get feedback and advice about the follow-up training programs based on their performance.

* Users can allow the system to collect, record and analyse their data on health and muscle movements.
* Users can choose the follow-up training programs recommended by the system.
* All feedback and recommendations based on data analysis.
* Different types of sports will have different criterias.
* Users can get professional feedback and recommendations based on different criteria..

1. **AI coach**

Users can get different AI coaches in different categories.

* Users will get a particular AI coach in different categories.
* Every AI coach is professional in specific type of sports.
* Users are provided with a demonstration by an AI coach when they start a training program.
* Users are able to skip particular steps provided by the AI coaches.
* Users can interact with AI coaches.
* Users can get encouragement from AI coaches.