Using mobile device as avatar controller

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Abstract

Project will consist of a computer application. It will allow user to use mobile device as a controller for moving an avatar. Information about device location and location changes will be send to computer application. On the application there will be a human avatar displayed. Moving the device will cause avatar to move in the same way as the user. User interface will be provided. There will be an option to close the program.

Application will be built using unity and bluetooth will provide information about mobile device location.

Requirements

Must have: ● bluetooth connectivity between mobile phone and desktop application, ● human avatar appearing on desktop application, ● synchronization between mobile phone movements and movements of the avatar,
Should have: ● possibility to connect to a different device, ● possibility to move different limb of an avatar,
Could have: ● provided functionality to change avatar details,
Won’t do this time: ● possibility to control every limb of the avatar using different device, ● provided surrounding in the desktop application to simulate walking with controllers, ● small mini-game to play using mobile controller

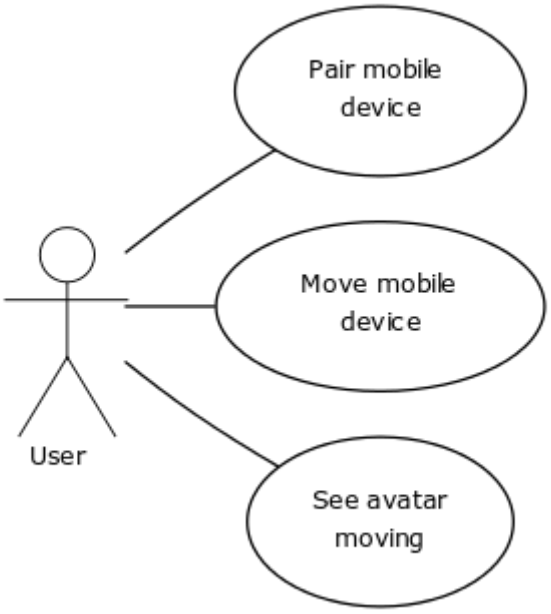
Main scenario:

1. Open desktop application with human avatar displayed.
2. Pair mobile device with application.
3. Move mobile device.
4. See avatar moving synchronously.

Use case diagrams

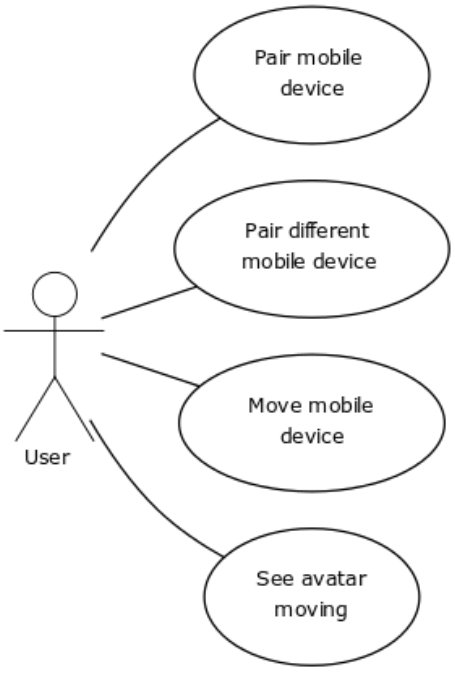
1. Must have

UC-Main

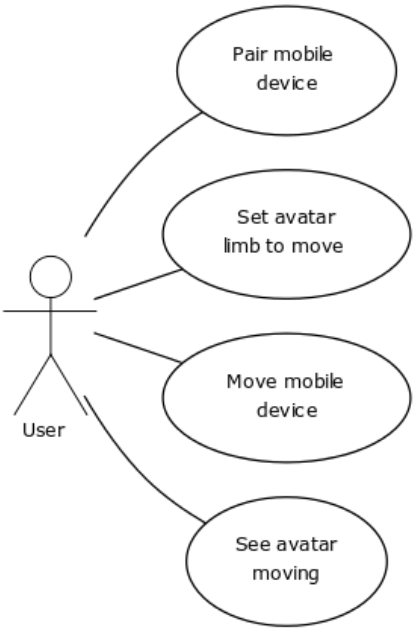


2. Should have

UC-DifDev

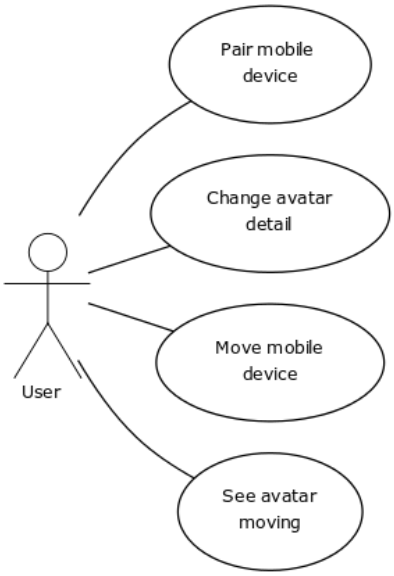


UC-DifLimb



3. Could have

UC-DifDet



Use cases

Code	UC-Main
Name	Main Use Case
Actors	User
Initial conditions	Mobile device with bluetooth functionality turned on
Related use cases	
Description	1. User opens desktop application with human avatar displayed 2. User pairs mobile device with application by choosing device on the list 3. User moves mobile device 4. User sees avatar moving synchronously
Alternative flow	2A. Mobile device was previously connected 3A. User sees error message on the screen

Code	UC-DifDev
Name	Connect to different device
Actors	User
Initial conditions	Mobile device with bluetooth functionality turned on
Related use cases	
Description	1. User opens desktop application with human avatar displayed 2. User pairs mobile device with application by choosing device on the list 3. User changes paired mobile device by choosing different device on the list 4. User moves mobile device 5. User sees avatar moving synchronously
Alternative flow	2A. Mobile device was previously connected 3A. User sees error message on the screen

Code	UC-DifLimb
Name	Move different limb
Actors	User
Initial conditions	Mobile device with bluetooth functionality turned on
Related use cases	
Description	1. User opens desktop application with human avatar displayed 2. User pairs mobile device with application by choosing device on the list 3. User sets avatar limb to move 4. User moves mobile device 5. User sees avatar moving synchronously
Alternative flow	2A. Mobile device was previously connected 3A. User sees error message on the screen

Code	UC-DifDet
Name	Change avatar details
Actors	User
Initial conditions	Mobile device with bluetooth functionality turned on
Related use cases	
Description	1. User opens desktop application with human avatar displayed 2. User pairs mobile device with application by choosing device on the list 3. User changes avatar details by choosing them from dropdown lists 4. User moves mobile device 5. User sees avatar moving synchronously
Alternative flow	2A. Mobile device was previously connected 3A. User sees error message on the screen