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| General Information | |
| Use Case Name\Number : 009  Subject Area : RC Connection  Description : Client system is connecting to server system | Responsible Analyst : Sanchez |

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| Requirements/Feature Trace | |
| **REQ#** | Requirements Name and / or Short Description |
| 1 | Network components are initialized and connected |
| 2 | System must initialize all controller components |
| 3 | System must initialize all video components |
| 4 | System must initialize sensor systems |

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| Revision History | | |
| Author | **Date** | **Comments** |
| Sanchez | 10/28/14 | Initial draft of use case |
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| **Insertion Points in other Use Cases** | | |
| Use Case Name | **Use Case Number** | **Step Inserted After** |
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| **Actors** | | |
| **Actor Name** | **Person/System** | **Brief Description** |
| Driver | Person | Driver is connecting the client to the server |
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| **Pre-Conditions** | |
| # | Description |
| 1 | Client is disconnected from the server |
| 2 | Client components are connected and initialized |

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| **Start Stimulus** |
| User selects the connect to RC (server) operation |

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| **Use Case Main Course Steps** | | | |
| **Number** | **Description** | **Adds/Alt Name/Number** | **Bus Rule#** |
| 1 | User initiates RC (server) connection |  |  |
| 2 | Client begins network handshake to server |  |  |
| 3 | Server acknowledges handshake |  |  |
| 4 | Client application notifies user of connection to server |  |  |
| 5 | Server application begins camera stream daemon |  |  |
| 6 | Client begins to receive video data, does not display |  |  |
| 7 | Server begins RC control daemon |  |  |
| 8 | Client sends signal ping to each motor to verify connection |  |  |
| 9 | Client begins XInput controller daemon |  |  |
| 10 | Server begins sensor daemon |  |  |
| 11 | Client begins receiving sensor data, does not display |  |  |
| 12 | Server zeroes accelerometer sensor |  |  |
| 13 | Client notifies user of successful connection and Ready-To-Run status |  |  |

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| **Exception Conditions** | | |
| **Exception Situations** | **Action(s) on Exception** | **Adds\Alt UC #** |
| Camera failure | Camera stream does not initiate, retry once, then prompt user for manual inspection if secondary failure occurs |  |
| RC Control failure | User observes the motor ping does not occur, must manually check connections |  |
| XInput Control failure | Client retries XInput initialization, prompts user for manual inspection upon failure |  |
| Oculus Rift failure | Client system will notify user of failure, user must manually check Oculus runtime and all Oculus connections |  |
| Sensor system failure | Server does not receive data from sensor, prompts user to test sensor manually |  |

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| Post-Conditions | |
| **#** | **Description** |
| 1 | Client system has connected to RC (server) system |
| 2 | RC system is ready to run |

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| **Candidate Objects** | | |
| **Class/Object Name** | **Descriptions** | **Possible**  **attributes** |
| NetworkManager | Handles the network handshakes during initialization | ClientSocket, ClientStream, ServerStream |
| ApplicationManager | Contains all manager objects crucial to system operation | NetworkManager, OculusManager |
| SensorManager | Processes and initializes sensor data | SensorHandle |
| OculusManager | Handles all Oculus Rift software interactions | OculusHandle |
| XInputManager | Manages the driver access of the controller data | ControllerHandle |
| RCCar | Manages the transfer of RC control data to the server | RCPacket |
| ControllerDaemon | Manages the translation and flow of RC control data, out to the servo and the motor | SteeringServo, DriveMotor |

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| **Assumptions** | | | | | |
| **#** | **Assumption** | **Date**  **Raised** | **Raised**  **By** | **Date**  **Verified** | **Verified By** |
| 1 | Minimal network latency and traffic | 10/28/14 | Sanchez | 10/28/14 | Sanchez |
| 2 | All peripherals are connected properly | 10/28/14 | Sanchez | 10/28/14 | Sanchez |

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| **Issues** | | | | | |
| **#** | **Issue** | **Date**  **Raised** | **Raised**  **By** | **Date**  **Verified** | **Verified By** |
| 1 | This use case contains a lot of moving parts | 10/28/14 | Sanchez |  |  |
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| **Other Comments** | | |
| **Author** | **Comment** | **Date** |
| Sanchez | Due to the developer and experimental nature of the project, many failures are not able to be handled automatically and require knowledgeable user attention | 10/28/14 |
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| Frequency of Execution |
| **Frequency:**  3 Minimum: 1 Maximum: 4 Average: 2 (OR)Fixed:  **Per:** Hour:Day:  Week:  Month:  Other: |

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| **Timing Information** | | | | | | | |
| **#** | **At/**  **Between** | **Step(s)** | **Timing**  **Unit** | **Minimum** | **Average** | **Maximum** | **Comments** |
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| **Volume Information** | | | | | | |
| **#** | **Step #** | **Unit of**  **Measure** | **Minimum** | **Average** | **Maximum** | **Comments** |
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| **Alternate Course General Information** |
| Alternate Course Name:  Alternate Course Number:  Parent Use Case Name:  Parent Use Case Number:  Description:  Reason for Execution: Non Exception:  Exception:  Exception #: |

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| Insertion Point |
| Step Inserted After |
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| Pre-Conditions | |
| 1. |  |
| 2. |  |

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| Alternate Course Steps | | | |
| **#** | **Step Description** | **Adds Use Case #** | **Business Rule(s)#** |
| 1. |  |  |  |
| 2. |  |  |  |
| 3. |  |  |  |
| 4. |  |  |  |

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| Post-Conditions | |
| 1. |  |
| 2. |  |