**Detailed Use Cases:**

|  |  |
| --- | --- |
| Name | Register Vehicles |
| Pre/Entry Condition | The Vehicle is on and broadcasting |
| Trigger | The Pilot clicks “Register Vehicle” button. |
| Post/Exit-condition | A message of success is displayed in a pop-up and the vehicle information is added to the list and registered in the system. |
| Main flow of events -- identify all data elements | --The Pilot clicks the “Register Vehicle” button.  --A window is displayed listing broadcast IDs of vehicles.  --The Pilot selects the vehicle and clicks the “Add” button.  --The Pilot enters vehicle nickname.  --The Pilot chooses whether vehicle is a Leader Vehicle or a Follower Vehicle.  --The Pilot clicks “Accept”. |
| Exceptions and alternate actions | The vehicle nickname is already in use, then the Pilot is advised that they need to choose a different name. |
| Special requirements -- if any |  |

|  |  |
| --- | --- |
| Name | Pilot Controls the Leader Vehicle |
| Pre/Entry Condition | The Leader Vehicle is Registered |
| Trigger | The pilot inputs a command in the controller |
| Post/Exit-condition | The Leader Vehicle has responded to the command |
| Main flow of events -- identify all data elements | -- The Pilot has inputted a command in the controller  -- The Application sends a signal to the Leader Vehicle  -- The Leader Vehicle responds to the command |
| Exceptions and alternate actions |  |
| Special requirements -- if any |  |

|  |  |
| --- | --- |
| Name | Follower Vehicle is Obstructed |
| Pre/Entry Condition | Follower vehicle is registered and has line of sight on Leader Vehicle |
| Trigger | Follower Vehicle detects Obstruction Object in path |
| Post/Exit-condition | Follower Vehicle has navigated around the Obstruction Object |
| Main flow of events -- identify all data elements | The Follower Vehicle is properly following behind the Lead Vehicle.  The Follower Vehicle identifies an Obstruction Object in its designated path.  The follower Vehicle navigates around the Obstruction Object and continues on its path. |
| Exceptions and alternate actions | If during the navigation around the Obstruction Object the Lead Vehicle becomes out of sight, the Follower Vehicle shall try to regain line of sight with the Lead Vehicle. |
| Special requirements -- if any |  |

|  |  |
| --- | --- |
| Name | Follower vehicle follows Leader |
| Pre/Entry Condition | Leader and Follower vehicles registered |
| Trigger | Leader vehicle moves away from Follower |
| Post/Exit-condition | Follower vehicle is moves toward Leader |
| Main flow of events -- identify all data elements | -- Follower detects that Leader is moving away from it  -- Follower determines direction that it must move in order to move towards Leader  -- Follower moves towards Leader |
| Exceptions and alternate actions |  |
| Special requirements -- if any |  |

|  |  |
| --- | --- |
| Name | Follower Vehicle Loses line of Sight |
| Pre/Entry Condition | Follower vehicle is following Leader Vehicle |
| Trigger | An Obstruction occurs and follower Vehicle loses line of leader vehicle |
| Post/Exit-condition | Follower Vehicle relocates the leader Vehicle |
| Main flow of events -- identify all data elements | -- Follower Vehicle stops in place.  -- Follower Vehicle shall try to regain line of sight with the Lead Vehicle.  -- Follower vehicle regains line of sight with leader. |
| Exceptions and alternate actions |  |
| Special requirements -- if any |  |

|  |  |
| --- | --- |
| Name | Collision Prevention |
| Pre/Entry Condition | Follower Vehicle approaches a certain proximity to Leader Vehicle |
| Trigger | Follower Vehicle becomes too close to the Leader Vehicle |
| Post/Exit-condition | Follower Vehicle is no longer within a certain proximity to Leader Vehicle |
| Main flow of events -- identify all data elements | -- Follower Vehicle stops in place  -- Follower Vehicle Waits in place for Leader Vehicle to move away |
| Exceptions and alternate actions | --Follower Vehicle reverses if Leader vehicle advances towards Follower Vehicle |
| Special requirements -- if any |  |

|  |  |
| --- | --- |
| Name | Connection Lost |
| Pre/Entry Condition | Application is connected to Leader Vehicle |
| Trigger | Application loses Connection with Leader Vehicle |
| Post/Exit-condition | Notification is sent to notify the Pilot that the connection was lost |
| Main flow of events -- identify all data elements | --Vehicle stops in place  -- Notification is sent that connection to Leader vehicle is lost |
| Exceptions and alternate actions |  |
| Special requirements -- if any |  |

|  |  |
| --- | --- |
| Name | Search Mode |
| Pre/Entry Condition | Application is currently not linked with already registered vehicles via a lost connection |
| Trigger | Search mode is triggered |
| Post/Exit-condition | Vehicles have been reconnected |
| Main flow of events -- identify all data elements | -- Vehicle regains signal connection  -- Notification is sent to the Pilot |
| Exceptions and alternate actions | --Application is unable to locate any vehicles |
| Special requirements -- if any |  |

|  |  |
| --- | --- |
| Name | Return Home |
| Pre/Entry Condition | Follower Vehicle is connected |
| Trigger | Return Home Command is initiated |
| Post/Exit-condition | Follower Vehicle returns to its initial location |
| Main flow of events -- identify all data elements | -- Follower Vehicle retraces its previous steps and returns to the point of origin  -- Pilot is notified that the Follower Vehicle has returned home |
| Exceptions and alternate actions |  |
| Special requirements -- if any |  |