Logic below, we can reuse some of the good work we already have for states in public enum RejoinReason:

public enum RejoinReason

{

// --- ALERT OFF reasons (codes < 100) ---

None = 50,

SettingDisabled = 1,

NotInCar = 2,

InPit = 3,

OfflinePractice = 4,

RaceStart = 5,

LaunchModeActive = 6,

MsgCxPressed = 7,

// --- ALERT ON reasons (codes >= 100) ---

// Low-speed incidents

StoppedOnTrack = 100, // On track, speed < 20

OffTrackLowSpeed = 101, // Off track, speed < 50

RecoveryLowSpeed = 102, // Just rejoined slowly, recovery phase

// High-speed incidents

OffTrackHighSpeed = 110, // Sustained off-track at speed > 50

RecoveryHighSpeed = 111, // High-speed recovery phase (lingering alert)

// Transitions

PitExit = 120, // From pit lane to track (TrackSurface change)

// Special/advanced cases

Spin = 130 // Future placeholder

}

The triggers we have in place for these already are good. We may not need 102 and 111 if we write better logic.

Important additions:

We need the live '**detected**' state above and then use a '**logic**' state which is also dependant on the delay timer and other code.

Rejoin Speed [RS] - Speed for rejoin clear alerts and low / high speed threshold. [RS]

Linger Timer [LT] - Value from user setting in UI. [LT]

Delay Timer [DT] - Variable activated inside code and prevents changing of '**logic**' state. [DT]

- Values are hard coded or from UI setting for Linger Timer. [LT]

LOGIC FLOW

Start:

↓

Alert System Enabled on either Dash (from MsgSystemDash and LalaDash settings UI)

**No:** Alerts OFF

**Yes:** 2. Alert Code 1-7

**Yes:** Alerts **OFF** (We can use the reason code elsewhere if needed for other dash functionality)

**No:** 3. Alerts Active

4. Detected Code 50 (normal driving)

**Yes**: 5. DT > 1

**Yes**: Wait until DT < 1

**No:** Alerts **OFF**

5. Detected Code > 99

**No:** (System Active but not visible to driver)

**Yes: (Lookup code and take the actions required)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Alert | On Detection | Higher Code Detected During | Lower Code Detected During | Change to Code 50 | Alert Message |
| 100 | Alert ON | [DT] = 1s then logic to new code | Not applicable as 100 is lowest Alert ON code | [DT] = [LT] and >[RS] then logic to new code | STOPPED ON TRACK HAZARD |
| 101 | Alert ON | [DT] = 1s then logic to new code | [DT] = 1s then logic to new code | [DT] = [LT] and >[RS] then logic to new code | OFF TRACK REJOIN WHEN SAFE |
| 110 | [DT] = 1s then  Alert ON | Logic to new code | [DT] = 1s then logic to new code | [DT] = 5s then  Alert OFF | OFF TRACK  CHECK TRAFFIC |
| 120 | Alert ON | Logic to new code | [DT] = 1s then logic to new code | [DT] = 10s then  Alert OFF | PIT EXIT  CHECK TRAFFIC |
| 130 | Alert ON | Highest code | [DT] = 3s then logic to new code | [DT] = [LT] and >[RS] then logic to new code | SPIN  HOLD BRAKES |

Alternate way of showing logic code changes:

1-7 = System OFF (At any time regardless of current code)

50 = Alerts OFF

50 to 100/101/120/130 = Alert ON

50 to 110 = 1s delay then Alert ON

100/101/130 to 50 = Delay for linger timer [LT] or speed above rejoin speed [RS] then Alert OFF

100/101 to higher = Delay for 1s then go to new code

110/120 to higher = Immediate change to new code

101/110/120 to lower = Delay for 1s then go to new code

130 to lower = Delay for 3s then go to new code