**Top state**

Input: None

Events:

|  |  |
| --- | --- |
| Event | Action |
| EVT\_ENTRY |  |
| EVT\_EXIT |  |
| EVT\_START | Start browser state |
| EVT\_OPEN\_BRIGHTNESS\_POPUP | Sender: [SETTING] button in Browser\_Nodisk, Browser\_Disk, Browser\_Baddisk  Popup brightness setting box |
| EVT\_CLOSE\_BRIGHTNESS\_POPUP | Sender:  Close brightness setting box |
| EVT\_CLOSE\_ALERT | Sender: Timer or manually sent from alert box.  Close alert box |

**Browser state**

Input: None

Events:

|  |  |
| --- | --- |
| Event | Action |
| EVT\_ENTRY | Create screen  Create virtual buttons  Setup inputs  Create other UI elements  Arm UI update timer |
| EVT\_EXIT | Disarm UI update timer  Delete virtual buttons (probably not necessary) |
| EVT\_START | Start browser\_nodisk state |
| EVT\_BROWSER\_UI\_UPDATE | Update top bar |
|  |  |

**Browser\_Nodisk state**

Input:

|  |  |  |  |
| --- | --- | --- | --- |
| Key | Button | | Keypad |
| **LVGL Event** | **Application Event** |
| SETTING | LV\_EVENT\_SHORT\_CLICKED | EVT\_OPEN\_BRIGHTNESS\_POPUP |  |
| BACK | LV\_EVENT\_SHORT\_CLICKED | EVT\_BUTTON\_BACK\_CLICKED |  |
| PLAY |  |  |  |
| UP |  |  |  |
| DOWN |  |  |  |

Events:

|  |  |
| --- | --- |
| Event | Action |
| EVT\_ENTRY | Setup inputs |
| EVT\_EXIT |  |
| EVT\_START | - |
| EVT\_DISK\_INSERTED | Sender: disk module  Transit to browser\_disk state |

**Browser\_Baddisk state**

Input:

|  |  |  |  |
| --- | --- | --- | --- |
| Key | Button | | Keypad |
| **LVGL Event** | **Application Event** |
| SETTING | LV\_EVENT\_SHORT\_CLICKED | EVT\_OPEN\_BRIGHTNESS\_POPUP |  |
| BACK | LV\_EVENT\_SHORT\_CLICKED | EVT\_BUTTON\_BACK\_CLICKED |  |
| PLAY |  |  |  |
| UP |  |  |  |
| DOWN |  |  |  |

Events:

|  |  |
| --- | --- |
| Event | Action |
| EVT\_ENTRY | Setup inputs |
| EVT\_EXIT |  |
| EVT\_START | - |
| EVT\_DISK\_EJECTED | Sender: disk module.  Transit to browser\_nodisk state. |

**Browser\_Disk state**

Input:

|  |  |  |  |
| --- | --- | --- | --- |
| Key | Button | | Keypad |
| **LVGL Event** | **Application Event** |
| SETTING | LV\_EVENT\_SHORT\_CLICKED | EVT\_OPEN\_BRIGHTNESS\_POPUP |  |
| BACK | LV\_EVENT\_SHORT\_CLICKED | EVT\_BUTTON\_BACK\_CLICKED |  |
| PLAY |  |  | LV\_KEY\_ENTER |
| UP |  |  | LV\_KEY\_PREV |
| DOWN |  |  | LV\_KEY\_NEXT |

Events:

|  |  |
| --- | --- |
| Event | Action |
| EVT\_ENTRY | Setup inputs and input group (for keypad)  Create new catalog object from root folder or restore previous opened folder, if successful, populate file list; otherwise send EVT\_DISK\_ERROR event. |
| EVT\_EXIT | Delete input group |
| EVT\_START | - |
| EVT\_BROWSER\_PLAY\_CLICKED | If clicked on a file, save history and transit to player state  If clicked on a directory, save history, populate that directory (send EVT\_DISK\_ERROR if fail).  If clicked on parent directory ([..]), send EVT\_BUTTON\_BACK\_CLICKED.  If clicked on page up/down, populate previous/next page. |
| EVT\_BUTTON\_BACK\_CLICKED | If not root folder, discard one level of history, create catalog on parent folder and populate, send EVT\_DISK\_ERROR if failed. |
| EVT\_DISK\_ERROR | Sender: browser\_disk event handler during disk I/O error.  Transit to browser\_baddisk state. |
| EVT\_DISK\_EJECTED | Sender: disk module.  Transit to browser\_nodisk state. |

**Player state**

Input:

|  |  |  |  |
| --- | --- | --- | --- |
| Key | Button | | Keypad |
| **LVGL Event** | **Application Event** |
| SETTING | LV\_EVENT\_SHORT\_CLICKED | EVT\_OPEN\_VOLUME\_POPUP |  |
| BACK | LV\_EVENT\_SHORT\_CLICKED | EVT\_BUTTON\_BACK\_CLICKED |  |
| PLAY | LV\_EVENT\_SHORT\_CLICKED | EVT\_BUTTON\_PLAY\_CLICKED |  |
| UP | LV\_EVENT\_SHORT\_CLICKED | EVT\_BUTTON\_UP\_CLICKED |  |
| DOWN | LV\_EVENT\_SHORT\_CLICKED | EVT\_BUTTON\_DOWN\_CLICKED |  |

Events:

|  |  |
| --- | --- |
| Event | Action |
| EVT\_ENTRY | Create screen.  Create virtual buttons.  Setup inputs.  Create other UI elements.  Arm UI update timer. |
| EVT\_EXIT | Disarm UI update timer.  Delete virtual buttons (probably not necessary). |
| EVT\_START | Send EVT\_BUTTON\_PLAY\_CLICKED. |
| EVT\_BROWSER\_UI\_UPDATE | Update top bar. |
| EVT\_BUTTON\_PLAY\_CLICKED | Get the current file, save history, determine file extension and transit to corresponding playing state.  If error, popup alert. |
| EVT\_PLAYER\_PLAY\_NEXT | Find next file (next or previous depending on nav\_dir). If found, send EVT\_BUTTON\_PLAY\_CLICKED.  If reach end of catalog, save last played file in history.  If disk error, send EVT\_DISK\_ERROR. |
| EVT\_BUTTON\_UP\_CLICKED | Set nav\_dir to up and send EVT\_PLAYER\_PLAY\_NEXT. |
| EVT\_BUTTON\_DOWN\_CLICKED | Set nav\_dir to down and send EVT\_PLAYER\_PLAY\_NEXT. |
| EVT\_OPEN\_VOLUME\_POPUP | Sender: [SETTING] button in this state and sub-state.  Pop up volume setting box. |
| EVT\_CLOSE\_VOLUME\_POPUP | Sender: Volume popup upon [BACK] clicked.  Close volume setting box. |
| EVT\_CLOSE\_VOLUME\_POPUP\_NEXT | Sender: Volume popup upon [SETTING] clicked.  Send EVT\_OPEN\_BRIGHTNESS\_POPUP. |
| EVT\_BUTTON\_BACK\_CLICKED | Transit to browser\_disk state. |
| EVT\_DISK\_ERROR | Transit to browser\_baddisk state. |
| EVT\_DISK\_EJECTED | Sender: disk module.  Transit to browser\_nodisk state. |
| EVT\_HEADPHONE\_PLUGGED | If volume setting box already shown, refresh it |
| EVT\_HEADPHONE\_UNPLUGGED | If volume setting box already shown, refresh it |

**Player\_S16 state**

Input:

|  |  |  |  |
| --- | --- | --- | --- |
| Key | Button | | Keypad |
| **LVGL Event** | **Application Event** |
| SETTING | LV\_EVENT\_SHORT\_CLICKED | EVT\_OPEN\_VOLUME\_POPUP |  |
| BACK | LV\_EVENT\_SHORT\_CLICKED | EVT\_BUTTON\_BACK\_CLICKED |  |
| PLAY | LV\_EVENT\_SHORT\_CLICKED | EVT\_BUTTON\_PLAY\_CLICKED |  |
| UP | LV\_EVENT\_SHORT\_CLICKED | EVT\_BUTTON\_UP\_CLICKED |  |
| DOWN | LV\_EVENT\_SHORT\_CLICKED | EVT\_BUTTON\_DOWN\_CLICKED |  |

Events:

|  |  |
| --- | --- |
| Event | Action |
| EVT\_ENTRY | Setup inputs.  Create decoder.  Setup audio system and start playback. |
| EVT\_EXIT | Finish audio system.  Destroy decoder. |
| EVT\_START |  |
| EVT\_BUTTON\_PLAY\_CLICKED | Pause/Resume playback. |
| EVT\_BUTTON\_BACK\_CLICKED | Stop audio playback. Set nav\_dir to 0. Audio system will send EVT\_AUDIO\_SONG\_ENDDED after last audio sample played. |
| EVT\_BUTTON\_UP\_CLICKED | Stop audio playback. Set nav\_dir to up. Audio system will send EVT\_AUDIO\_SONG\_ENDDED after last audio sample played. |
| EVT\_BUTTON\_DOWN\_CLICKED | Stop audio playback. Set nav\_dir to down. Audio system will send EVT\_AUDIO\_SONG\_ENDDED after last audio sample played. |
| EVT\_AUDIO\_SONG\_ENDDED | If nav\_dir is 0, transit to browser\_disk state.  Otherwise send EVT\_PLAYER\_PLAY\_NEXT (player state to handle) |

**Popup Brightness**

Input:

|  |  |  |  |
| --- | --- | --- | --- |
| Key | Button | | Keypad |
| **LVGL Event** | **Application Event** |
| SETTING | LV\_EVENT\_SHORT\_CLICKED | EVT\_CLOSE\_BRIGHTNESS\_POPUP |  |
| BACK | LV\_EVENT\_SHORT\_CLICKED | EVT\_CLOSE\_BRIGHTNESS\_POPUP |  |
| PLAY |  |  |  |
| UP |  |  | LV\_KEY\_UP |
| DOWN |  |  | LV\_KEY\_DOWN |

|  |  |
| --- | --- |
| Creation | Called by top state when handling EVT\_OPEN\_BRIGHTNESS\_POPUP.  Save current input configuration.  Setup input.  Create slider box, bind slider to UP/DOWN and set slider VALUE\_CHANGED event. |
| Close | Called by top state when handling EVT\_CLOSE\_BRIGHTNESS\_POPUP.  Delete input group.  Close slider box.  Restore original input configuration. |

**Popup Volume**

Input:

|  |  |  |  |
| --- | --- | --- | --- |
| Key | Button | | Keypad |
| **LVGL Event** | **Application Event** |
| SETTING | LV\_EVENT\_SHORT\_CLICKED | EVT\_CLOSE\_VOLUME\_POPUP\_NEXT |  |
| BACK | LV\_EVENT\_SHORT\_CLICKED | EVT\_CLOSE\_VOLUME\_POPUP |  |
| PLAY |  |  |  |
| UP |  |  | LV\_KEY\_UP |
| DOWN |  |  | LV\_KEY\_DOWN |

|  |  |
| --- | --- |
| Creation | Called by player state when handling EVT\_OPEN\_VOLUME\_POPUP.  Save current input configuration.  Setup input.  Create slider box, bind slider to UP/DOWN and set slider VALUE\_CHANGED event. |
| Close | Called by player state when handling EVT\_CLOSE\_VOLUME\_POPUP and EVT\_CLOSE\_VOLUME\_POPUP\_NEXT.  Delete input group.  Close slider box.  Restore original input configuration. |

**Popup Alert**

Input:

|  |  |  |  |
| --- | --- | --- | --- |
| Key | Button | | Keypad |
| **LVGL Event** | **Application Event** |
| SETTING |  |  |  |
| BACK |  |  |  |
| PLAY |  |  | LV\_KEY\_ENTER |
| UP |  |  |  |
| DOWN |  |  |  |

|  |  |
| --- | --- |
| Creation | Called by player state on various occasions when error occurred.  Save current input configuration.  Setup input.  Create alert popup. Bind KEY\_ENTER callback.  Setup auto close timer to emit EVT\_CLOSE\_ALERT (handled by top state). |
| Callback | **When ENTER key pressed, stop auto close timer.**  **When ENTER key clicked, send EVT\_CLOSE\_ALERT (handled by top state).** |
| Close | **Called by top state when handling EVT\_CLOSE\_ALERT.**  **Delete input group.**  **Close alert.**  **Restore original input configuration.** |