RU LG STE Student Practice Guide

- Introduction
- Prerequisites
- Sample application guideline

June 27, 2023

CTO SW Center / Russia R&D Lab

Student Practice Guide

Time Period:

- June 27 - July 7

Practice Theme:

- Web application media content playback

Practice Goal:

- Create a web application with media content playback feature implemented

Achievement Criteria:

- The application should be delivered as a webOS-compatible web application (.ipk file)
- The application sources should be provided
- The application should follow provided guideline and include features listed later
- The description of the tasks done should be provided in written form

Achievement Result:

- A student is evaluated as “Passed” or “Failed”

Expected Technical Skills:

- HTML
- CSS
- JavaScript

Communication Methods:

- Email/Phone/Telegram Group

Intermediate Evaluations:

- 2 times

Final Evaluation:

- July 7

Practice Supervisor:

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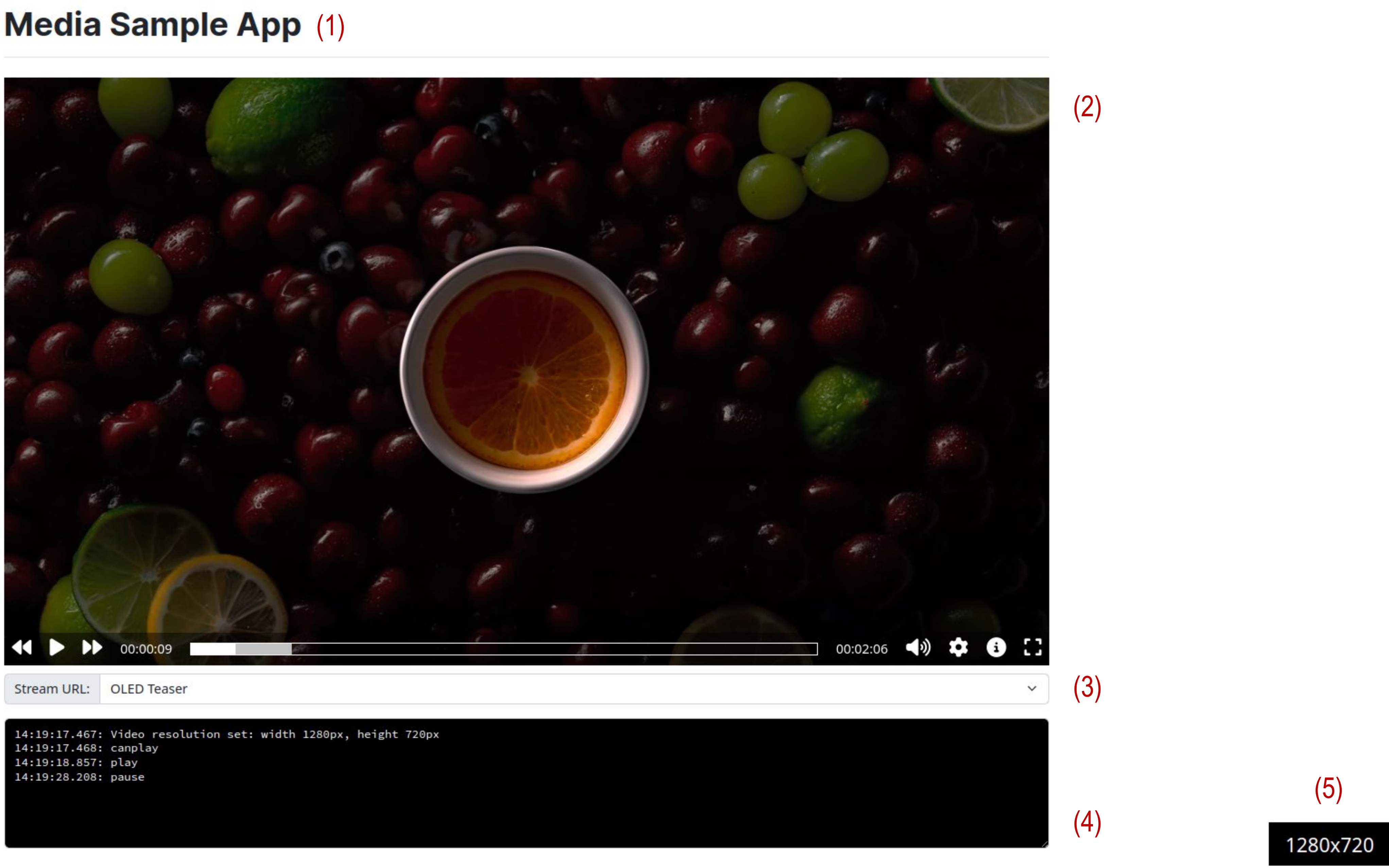
In order to complete the practice tasks successfully you have to meet the following expectations:

- **Examine the basics of webOS TV Platform**
  - https://webostv.developer.lge.com/

- **Setup development environment with webOS TV SDK**
  - Install webOS TV CLI
    - https://webostv.developer.lge.com/develop/tools/cli-introduction
  - Install one of web application development environment
    - webOS TV Simulator (preferred)
      - https://webostv.developer.lge.com/develop/tools/simulator-introduction
    - webOS TV Emulator (legacy)
      - https://webostv.developer.lge.com/develop/tools/emulator-introduction
  - (Optional) Install Visual Studio Code extension
    - https://webostv.developer.lge.com/develop/tools/vsce-introduction

- **If required, examine the content of any web application development handbook, i.e.:**
  - https://developer.mozilla.org/
  - https://www.w3schools.com/
- **And, the content of webOS TV apps samples:**
  - https://webostv.developer.lge.com/develop/samples



Media Sample App

Stream URL: OLED Teaser

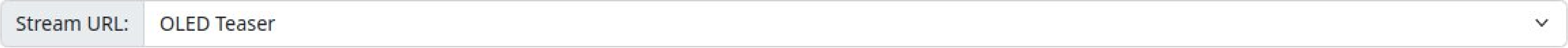
```
14:19:17.467: Video resolution set: width 1280px, height 720px
14:19:17.468: canplay
14:19:18.857: play
14:19:28.208: pause
```

1280x720

The app screen structure:

- (1) App header
- (2) Media playback container with control elements
- (3) Media content source selector
- (4) Log container
  - Displays variable log information about the current media playback
- (5) Current media playback resolution
  - Indicates the current media playback resolution

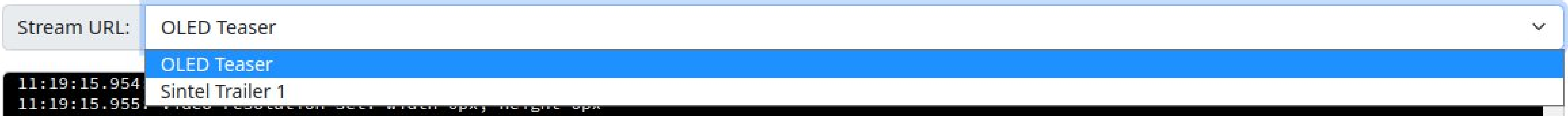
(3) Media content source selector states



Stream URL: OLED Teaser

(a) Default state

- Source selector should display current media playback title



Stream URL: OLED Teaser

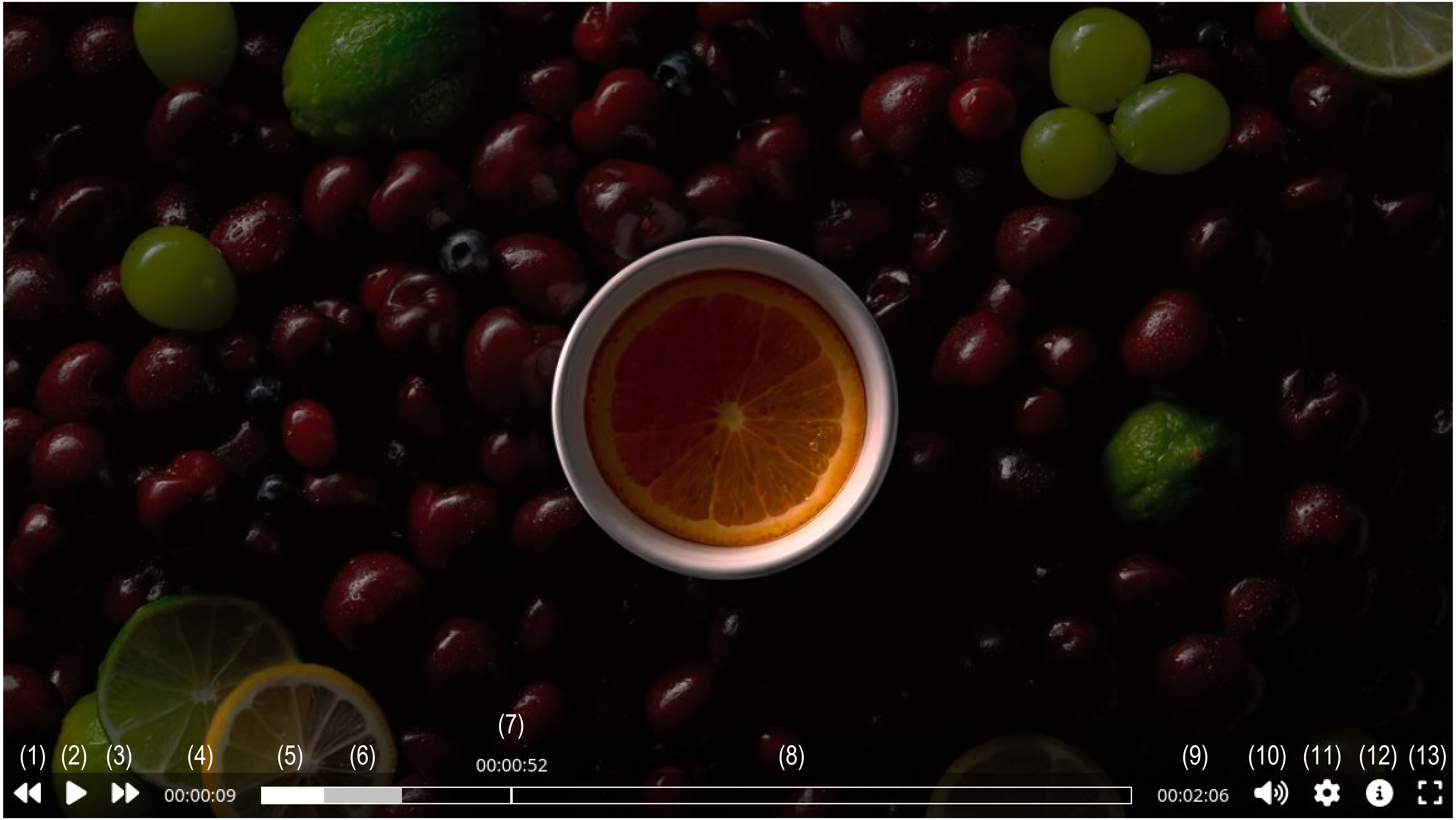
```
11:19:15.954
11:19:15.955
```

(b) Clicked state

- Source selector should display media source options titles

(c) Option clicked state

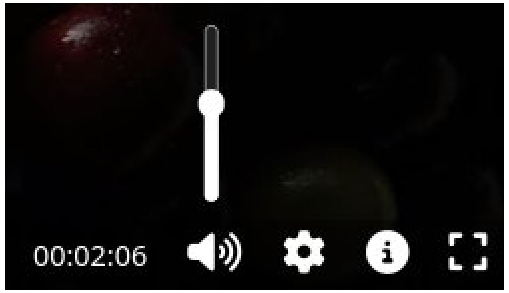
- Click on any option should result corresponding media source playback start


(1)
(2)
(3)
(4)
(5)
(6)
(7)
00:00:52
(8)
(9)
(10)
(11)
(12)
(13)
00:00:09
00:02:06

The app media controls features and elements:

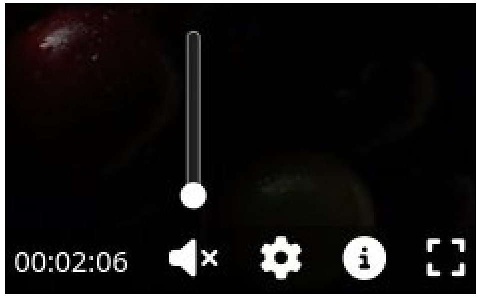
- (1) “Backward” rewind:
  - Button click results media current time moved back to 10 seconds
- (2) “Play/Pause”:
  - Button click results media playback start or pause
  - Button should change its appearance depending on the media playback state
- (3) “Forward” rewind:
  - Button click results media current time moved forward to 10 seconds
- (4) Current time indicator:
  - Indicates media playback current time in HH:MM:SS format
- (5) Relative current time progress bar:
  - Indicates media playback current position relative to the media duration
- (6) Relative media buffered progress bar:
  - Indicates media playback buffered relative to the media duration
- (7) Media playback time selector:
  - Allows to jump to any media playback time
  - It should display possible jump time in HH:MM:SS format
- (8) Media playback duration bar:
  - Indicates media duration in an element with static width
- (9) Media duration indicator:
  - Indicates media duration in HH:MM:SS format
- (10) Volume control
  - Button click results media to be muted (i.e. volume set to 0)
  - Button hover results volume range control to appear
- (11) Quality settings
  - Button click results media quality controls to appear
- (12) Media Info
  - Button click results media content info window to appear
  - This info is fetched from 3rd party API (i.e. omdbapi.com)
- (13) “Expand/Collapse”:
  - Button click results media to be expanded to fullscreen/collapsed to windowed view
  - Button should change its appearance depending on the media view

(10) Volume control states



(a) Hovered state

- Volume range control should appear
- Dragging volume range control should change media volume from 0 to 100
- Setting media volume to 0 should result (b) state
- Leaving cursor from volume range control should hide it

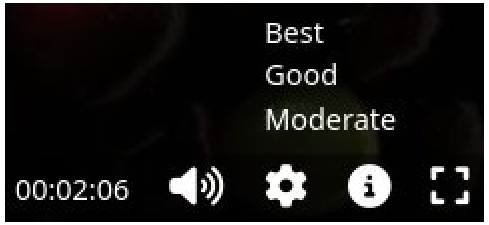


(b) Clicked state

- Volume control button should change its appearance
- If media volume > 0, then button click should result media volume set to 0 and volume range control set to 0 (lowest state)
- If button clicked again and media volume = 0, then button click should result previous media volume restored as well as volume range control

(Optional) App should keep the last set media volume after reload or starting another media playback

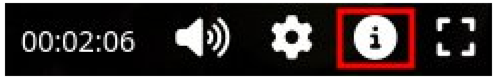
(11) Quality settings states

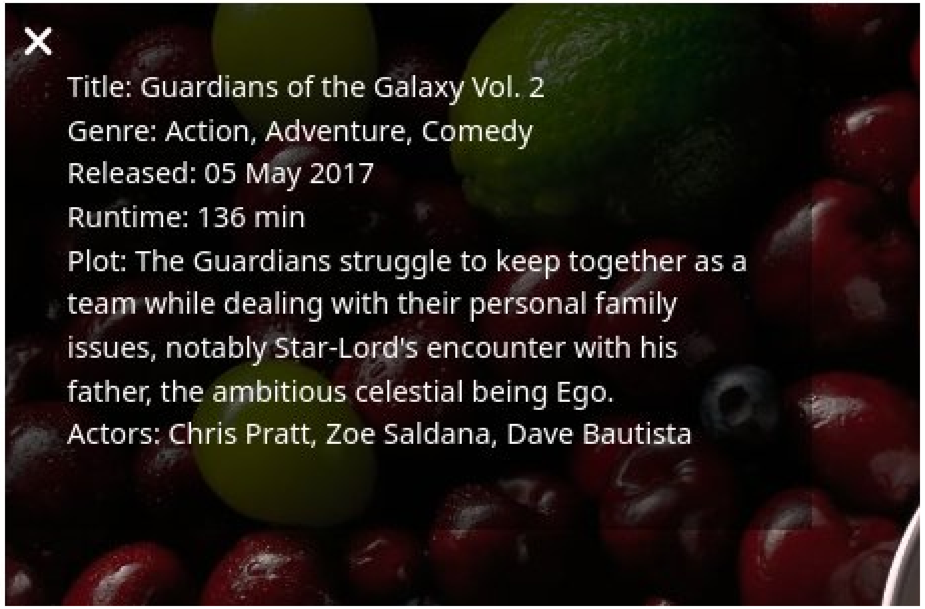


(a) Clicked state

- Quality settings options should appear
- Click on any quality options should result changing current playback quality
- Playback should continue playing from the current time after quliaty changed
- Qulaity options should hide after clicking on an option
- Predefined resolutions for quality options could be:
  - “Best”: 1920x1080px
  - “Good”: 1280x720px
  - “Moderate”: 854x480px

(12) Media Info



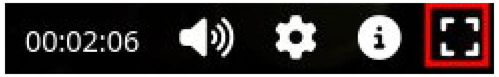


Title: Guardians of the Galaxy Vol. 2
Genre: Action, Adventure, Comedy
Released: 05 May 2017
Runtime: 136 min
Plot: The Guardians struggle to keep together as a team while dealing with their personal family issues, notably Star-Lord's encounter with his father, the ambitious celestial being Ego.
Actors: Chris Pratt, Zoe Saldana, Dave Bautista

(a) Clicked state

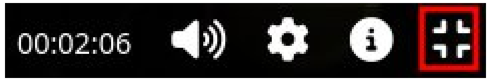
- Click on button should result media info window appear
- Media info window should contain any basic information about the current media
- Media info should be fetched from external API source via HTTP request
- Possible source of media info is http://www.omdbapi.com
- Click on button with media info window visible should result media info window hide
- Click on [X] icon within visible media info window should result media info window hide

(13) “Expand/Collapse” states:



(a) Windowed (collapsed) state

- Click on button should result media playback container to expand to fullscreen state

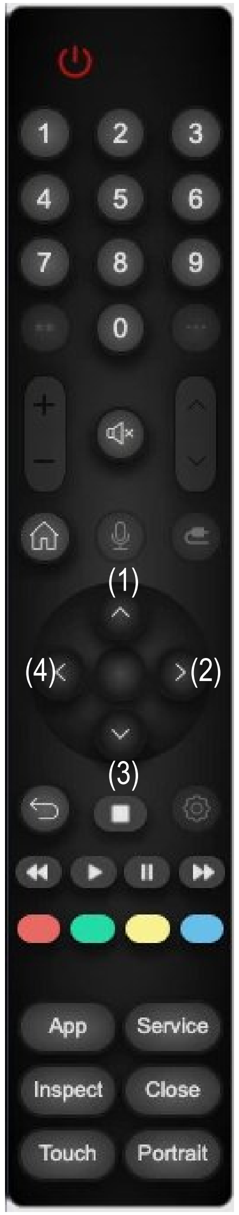


(b) Fullscreen (expanded) state

- Click on button should result media playback container to colllapse to windowed state

RCU/MRCU specific control features:

- (1) “Up” button
  - Pressing button should result changing media source option to a previous one if the current one isn’t the first
  - If the current media source is the first, then no action is required
  - New media source playback should start automatically
- (2) “Right” button
  - Pressing button should result the current media time moved forward to 10 seconds
  - Media controls elements should appear for a few seconds
- (3) “Down” button
  - Pressing button should result changing media source option to a next one if the current one isn’t the last
  - If the current media source is the last, then no action is required
  - New media source playback should start automatically
- (4) “Left” button
  - Pressing button should result the current media time moved backward to 10 seconds
  - Media controls elements should appear for a few seconds



References:

- “Magic Remote” info:
  - https://webostv.developer.lge.com/develop/guides/magic-remote#magic-remote-control-unit
- “Remote Control” sample app:
  - https://github.com/webOS-TV-app-samples/RemoteControl