Air University Multan Campus

Department of Computer Science

CS 382 Visual Programming

Fifth Semester Fall2021

MEDIA SLIDESHOW HUB

SEMESTER PROJECT

We propose an exciting project to elevate Media SlideShow Hub to the next level of innovation. Media SlideShow Hub is an open-source and power-efficient media slideshow viewer built on the Raspberry Pi platform, designed to revolutionize how we display photos, videos, and animated images within our homes. It is poised to offer an unparalleled visual experience and seamless integration with home automation systems.Our mission is to expand and refine Media SlideShow Hub capabilities, ensuring that it continues to lead the way in digital frame technology. With its existing features, including remote uploads, support for various media formats, and home automation integration via MQTT and Node-Red, Media SlideShow Hub is already a compelling choice for users seeking dynamic and customizable content displays.

What sets Media SlideShow Hub apart is not only its hardware efficiency but also its flexibility in playlist support, allowing users to curate their digital ambiance to match their moods, be it movie posters, sci-fi artwork, or serene landscapes. It can be controlled remotely through a web interface from any device with a browser, ensuring a user-friendly experience.

Furthermore, its cost-effective operation, estimated at just $1.50 per year with power-efficient features and Raspberry Pi hardware, makes it an accessible choice for a wide range of users.  Media SlideShow Hub open-source nature means it's continuously evolving, and we invite developers and enthusiasts to contribute to its growth, ensuring it remains at the forefront of home media displays.

In this project, we aim to enhance Media SlideShow Hub user interface, optimize its power efficiency, and introduce new features that will redefine how we interact with visual content in our homes. Media SlideShow Hub represents the future of media display, and we're excited to be part of this journey to bring it to even greater heights.

THE SYSTEM SHOULD PROVIDE THE FOLLOWING CORE REQUIREMENTS

Project Requirements:

1. **Crossfades**: Implement smooth crossfading transitions between images, enhancing the visual appeal of the slideshow. Unlike the previous version, where images simply appeared, this version will create a more seamless viewing experience.

2. **Full Screen Mode**: Ensure that Media SlideShow Hub automatically takes up the full screen, eliminating the need to hide the taskbar and black out the background, providing users with a distraction-free display.

3. **Persistent Settings**: Develop a mechanism to save changes made via the web UI. This will allow users to customize their Media SlideShow Hub experience and ensure that their preferences are retained.

4. **Rotation Control**: Enable on-the-fly rotation adjustments without the need to rotate the entire OS. Users should be able to set rotation preferences for the entire slideshow, although per-image rotation is not supported.

5. **All Photos Inclusion**: Extend support to include all photos within the user's 'my pictures' folder or its equivalent, allowing for a broader selection of images for the slideshow.

6. **Automatic Scaling**: Implement automatic image scaling to ensure that pictures that don't take up the full screen are zoomed to fill the frame, maintaining a visually pleasing display.

7. **Smaller Download Size**: Optimize the software to reduce the download size. Transition from the previous 16GB Raspbian image to a more efficient package, with a significantly reduced size of under 60MB.

8. **Background Handling**: Remove the need for manually hiding the background. The app should seamlessly cover the background, creating a cleaner and more professional appearance.

9. **Easier Autostart Setup**: Simplify the process of setting up auto-start functionality by including it as part of the installation process, reducing user effort and ensuring a hassle-free experience.

10.**Utilization of Pictures Folder**: Ensure that Media SlideShow Hub utilizes the user's pictures folder, making it easier to update content without the risk of losing slideshow setups. This also simplifies the process of adding new pictures to the frame.

11. **Web-Based Shutdown**: Enable users to safely shut down the Media SlideShow Hub directly from the web UI, a critical feature given that the frame may not always have a keyboard/mouse connected.

12. **Customizable Slide and Transition Times**: Allow users to customize the time each photo is displayed on the frame between transitions and set the duration of transition effects. This customization should be user-friendly and not require code editing.

13. **Extended File Type Support**: Ensure that Media SlideShow Hub supports a wide range of image and video file types. Enhance support beyond the previous version and continue to expand compatibility.

14. **Filename Compatibility**: Resolve filename issues from the previous version, ensuring that characters such as underscores, dashes, and special characters no longer disrupt the functionality.

15. **Infobar Customization**: Allow users to choose to display a date, time, file name, or a combination of these in an infobar. Ensure font size and type are configurable to match user preferences.

16. **Ease of Use Improvements**: Provide users with essential information, such as the IP/port of the web server, making it easier for them to access and configure settings via their smartphones or other devices.

17. **Web Frontend for Settings**: Offer a user-friendly web interface for configuring Media SlideShow Hub settings, ensuring that changes persist. The simplicity of a webpage eliminates the need for app installations and guarantees compatibility with various devices.

18. **Playlist Support**: Enable the creation of playlists by organizing pictures in folders. This feature allows for unique and dynamic slideshows without the need to restart the entire system.

19. **Raspberry Pi Monitor Control**: Develop the capability to control most monitors via the web UI. This feature allows users to turn the monitor on/off directly from the Raspberry Pi, enhancing user convenience.

20. **Folder Addition**:Allow users to add folders of their choice, including those mounted from NAS, WebDav, or USB drives, giving them greater flexibility in selecting content for their slideshow.

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