

Multimedia-Based Scout Semaphore Code Learning Mobile Application

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Abstract

This research aims to analyze how to design a mobile application that can present information about multimedia-based learning that is easy to understand and use for students. The data collection methodology used is a literature study. Making applications based on storyboards, flowcharts, navigation structures, or object diagrams originating from the design stage. All multimedia objects or elements are created and combined into a single application. At this stage, we use software such as Adobe Flash CS4, Adobe Device Central CS4, Adobe Photoshop CS2, and Adobe Audition 1.5. The author provides testing, which was carried out in 2 stages: the first stage was carried out in the emulator environment, and the second stage was applied to the actual device, namely cellphone media. Based on research results, it shows that with a busy level of routine and high mobility, cellphones are a complex and sophisticated technological device, inseparable from everyday life because, apart from being a communication tool, they also have multimedia features that can be used to help implement methods. learning. It becomes easier for users to learn lessons outside of study hours. The use of Flash Lite makes this multimedia-based mobile application more interesting and interactive.

Keywords: mobile application, flash lite, multimedia.

INTRODUCTION

One of the results of technological developments is mobile devices, which have made the cellphone a device that functions as a means of telecommunications and has various very complex and sophisticated features that are used for calling and Short Message Service (SMS) because it is moveable, making the cellphone an inseparable device in everyday life. The cellphone feature is also capable of running mobile applications in various formats. Mobile devices have had various positive and negative impacts on human life. Negative impacts include fraud via SMS services, the spread of viruses, internet crimes via cellphones, and others. Of the various negative impacts caused by the development of mobile phone technology, there are positive impacts that can be utilized, such as in conveying information for learning semaphore passwords via mobile applications (Muktamar et al., 2023).

Semaphore is a way to send and receive news over long distances using flags, paddles, rods, bare hands, or gloves. Semaphore is used if circumstances do not allow for direct communication or with other means of communication. In scouting, the semaphore technique is usually carried out using a pair of flags measuring 45 cm x 45 cm, which are a combination of two isosceles triangles, each colored red and yellow. This color choice was intentional because this color looks striking even though it is visible from a very long distance. In Indonesia, semaphores are usually used as one of the skills that must be possessed in scouting activities. For scouts, especially those from the raiser to pandega groups, skills and mastery of semaphores are very necessary (Lerian & Chenayan, 2023). Semaphore is one of the requirements in SKU (General Skills) and SKK (Special Skills for Slogan Interpreters and SKK for Flag Signal Interpreters). The existence of the Scout movement for the younger generation, especially for pupils and students, directly or indirectly, contributes greatly to the development of talents, interests, skills, and discipline. If in the past, Scouts were synonymous with marching activities, now Scouts have begun to form the image that they are a group of youth and students who are learning to be independent on their own (Sulistiyorini et al., 2023).

It is appropriate to try to reform the Scout education format with a system that prioritizes the development of science and technology rather than developing physical strength alone. This does not mean that routine training activities are eliminated, but the form and format of the training carried out are structured in such a way as to support the development and improvement of scientific and technological capabilities (Ainun & Jefriyanto, 2023). Scout members must not be technologically illiterate, but must be technologically literate. By utilizing technology on cellphones, the author tries to provide a positive impact or benefit from the development of cellphone devices by designing a mobile application or multimedia-based mobile application that runs on cellphone devices using Flash Lite to modernize semaphore password lessons. The development of this application is inseparable from the fact that there are many mobile devices that support the Flash Lite version 2.0 application and support various kinds of multimedia elements, so the author wants to explore Flash Lite technology by designing this learning application (Ramdani et al., 2023).

METHOD

The data collection methodology used is a literature study. In this research, there are several stages, namely: the concept stage, namely determining the objectives, including user identification, type of application (presentation, interactive, etc.), application objectives (information, training), and general specifications. Basic rules for design are also determined at this stage, such as application size, targets, and so on. At this stage, the author obtains the necessary materials related to multimedia, such as images, animation, audio, making graphic images, photos, etc., from various sources, such as the internet, scientific collections, and the author's creations. The assembly stage is the stage where all multimedia objects are created. Making applications based on storyboards, flowcharts, navigation structures, or object diagrams originating from the design stage. All multimedia objects or elements are created and combined into a single application. At this stage, we use software such as Adobe Flash CS4, Adobe Device Central CS4, Adobe Photoshop CS2, and Adobe Audition 1.5. In Adobe Flash CS4, the author uses the features contained in it, namely layers, action scripts, frames, keyframes, blank keyframes, play heads, stages, toolboxes such as text, properties panels, which are used to set the framerate and background color of the application, set the shape, type, and color of the text, and use of menus such as save, open file, import, and test movie. In Adobe Device Central CS4, the author uses the features contained in it, namely device sets, emulators, info files, memory, display, local libraries, and device profiles. Meanwhile, in

Adobe Audition 1.5, the author only uses the mp3 file compression feature, and in Adobe Photoshop CS2, the author uses the features contained in it, namely layers, text tools, and effect layers. The minimum specifications for making this application are to use Adobe Flash CS3, Adobe Device Central CS3, Adobe Photoshop 7, and Adobe Audition 1.5 software. The author provides testing, which was carried out in 2 stages: the first stage was carried out in the emulator environment, and the second stage was applied to the actual device, namely cellphone media. And what is no less important is that the application must run well and be useful for the users who use it.

RESULT AND DISCUSSION

The author carried out application design in the form of storyboard design, flowchart design, navigation structure design in the form of a menu hierarchy, STD (State Transition Diagram) design and user interface design. A storyboard is a description of each display (scene) by including all multimedia objects as well as links to other scenes according to the storyline of the description of the application components to be designed. The navigation structure used is a hierarchical model with slight modifications. In this model, you can see the use of each scene or screen in relation to other scenes. From the flowchart design, it can be concluded that the main menu is displayed as an opener and menu options are displayed at the same time for efficiency and easy access from the main menu to sub-programs. If the user wants to end it immediately, an exit menu will also appear on the main menu page. From the flowchart design above, the choice of subprograms is made as simple as possible so that users can easily understand the program flow and it is hoped that it can meet the "User-Friendly Program" requirements.

The design of the user interface that will be displayed on this mobile application will be adjusted to the design made on the menu and displayed according to the needs of users who will use and view the information they need. In this application program, there are six screen designs, namely: Intro-Screen Design: This design is the initial display before going to the main display of the program and consists of two displays, namely the opening info display and the animation display. The opening info display contains the title of the application. After the animation display is complete, the main menu display of the application will be displayed automatically. The opening display contains the name of the learning mobile application software and an animation display. Main Menu Design: This is the main display of the application being created. This display contains several multimedia elements, namely animation, text, images, background sound, and navigation buttons. The navigation buttons on this display consist of two main buttons that go to the information or material content page of the application, two buttons on the selection options that go to additional information from the application, such as selecting menus or changing views and a button to exit the application.

The information menu design is used to display an information submenu consisting of 5 navigation buttons that go to information material pages, navigation buttons to select menus and navigation buttons to return to the main menu page. The simulation menu design is used to display the learning simulation menu. In this menu, there are input and output word boxes, whose input will be translated into a password form and navigation buttons to return to the main menu page. The About Application Menu design is used to display information about application features, application specifications, software used in the application creation process, author data, and the purpose of making the application. The navigation buttons are a button to return to the main menu page and a button to select application information. Main Menu Design 2 is an alternative display of the main menu that has the same content and navigation buttons as the main menu.

The materials needed to build this application, in the form of text files, animated images, audio, and navigation controls, were obtained by taking them from various sources, but most of the elements were created by the author himself using programming software, namely Adobe Flash CS4 and software. Adobe Photoshop CS2 graphic design. Text files are materials whose contents are related to learning. The author obtains data based on books and websites that he uses. This is done so that the material submitted can be accounted for in accordance with applicable regulations. The author's image files were obtained from the internet, a personal collection, and were created by the author himself. They were then processed using Adobe Photoshop CS2 and the supporting application Adobe Flash CS4 to add effects such as shadows to the image, a basic background display, or the background image of this application. The animation in this application is made from bitmap-based images in PNG format and vector-based images, which the author animated using Adobe Flash CS4. The background music and sounds in this application were obtained from the internet and the author's personal collection in MIDI and MP3 formats. The author processed the audio files using Adobe Audition 1.5 by reducing the bitrate and cutting certain parts. Navigation controls are in the form of buttons that contain links that connect from one page to another. The buttons in the application were obtained from the internet and the author made them himself using Adobe Photoshop and Adobe Flash. The button animation was created using Adobe Flash.

Creation of the application programs (assembly): At this stage, all materials that have been collected, such as multimedia elements, are integrated using Adobe Flash CS4. In Adobe Flash CS4, coding is carried out using the Flash programming language, namely ActionScript 2.0, with reference to Flash Lite version 2.0 programming to produce a SWF movie file (.swf) or a file that can be run using a Flash Lite player. In making this application, the author used a layer size specification of 128x160 pixels with a full-screen display with quality set to high and a frame rate of 12 fps. To design a mobile learning application using specification software as follows: Adobe Flash CS4 is the main software, which functions to combine all program components that have been created. Adobe Device Central CS4 is for testing mobile device emulators and ensuring the results of the application run well. Adobe Photoshop CS2 for designing program layer display images, design writing, button design, and all the necessary animations. Adobe Audition 1.5 is used to provide sound effects in this application.

To develop the design of the mobile learning application, the author uses a computer with the following hardware specifications: Intel Pentium P6200, 2.13 GHz. Memory 2 GB RAM. Radeon HD 6470M 512 MB VGA Card. 300 GB hard disk. Monitor with a resolution of 1366x768 pixels. Speaker. Mouse. Keyboards. Bluetooth devices. Mini USB data cable/card reader. After the hardware and software specifications are met, the next stage is the manufacturing stage using the software that has been prepared, along with the important stages in creating the application. The first process the author did was create an application background image and other images, such as logos and icons, using the image processing application Adobe Photoshop CS2. After the background image and other required images were completed, the author used Adobe Flash CS4 to create a mobile application related to navigation and designing the user interface or appearance of the application. Likewise with the animation created by the author in making the application. Animation is used in the intro display using the motion tween technique; this technique is also used in creating the closing layer animation. Background images and other images are designed, and text captions for buttons are created to complement the appearance of the main menu. The author carried out testing on the application program created. First of all, testing was carried out on the Adobe Device Central CS4 emulator to ensure whether the results were according to plan and could run well. The next test is carried out on a real cellphone device, with the aim of finding out

whether the game program runs well.

The specifications for cellphones that can use the application are: Has the Nokia OS operating system. Platform: Series 40 3rd Edition or a newer OS. Supports FlashLite 2.0 applications. The remaining storage capacity is at least 1.5 megabytes or more as a storage medium for applications. For testing using a cellphone device, first the application is transferred from the computer to the cellphone by utilizing the connectivity features available on the cellphone device, including Bluetooth, miniUSB, and a card reader. After the transfer process is complete, this application can be run immediately without the installation process. For testing using a cellphone device, first the application is transferred from the computer to the cellphone by utilizing the connectivity features available on the cellphone device, including Bluetooth, miniUSB, and a card reader. After the transfer process is complete, this application can be run immediately without the installation process. The results of testing on mobile devices show that this application can run well and is in accordance with testing on the Adobe Device Central CS4 emulator carried out previously. Applications that have gone through the testing stage on emulators or mobile devices are then packaged in the form of a CD (compact disk). At this stage, the author limits it to evaluating the design and implementation of learning mobile applications, because previously, the author had limited the research methodology stage to only the testing stage.

CONCLUSION

With a busy level of routine and high mobility, cellphones are a complex and sophisticated technological device, inseparable from everyday life because, apart from being a communication tool, they also have multimedia features that can be used to help implement learning methods. It becomes easier for users to learn lessons outside of study hours. The use of Flash Lite makes this multimedia-based mobile application more interesting and interactive. This learning mobile application is still far from perfect; therefore, the author tries to provide suggestions for parties who want to develop this application, namely: This learning mobile application can be developed by adding other learning. This learning mobile application is not only limited to cellphones with the Symbian Operating System but can also be run on Java-based smartphones. This learning mobile application can not only run on cellphones with keypads but can also be run on touch-screen cellphones.

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