

# Edutainment: The Essential Element in Agriculture Mechanization

Mat Atar Mat Amin, Mohd Hudzari Haji Razali, Nashriyah Mat and Syazili Roslan  
*Universiti Sultan Zainal Abidin (UniSZA),  
22200 Besut, Terengganu, Malaysia.  
mohdhudzari@unisza.edu.my*

**Abstract**— This study was also done to develop virtual teaching tractor as an interactive learning program for students especially for an Agricultural Mechanization subject. The study was divided into two parts which is to develop visual tractor and virtual tractor as a teaching's tool. The development of this teaching tractor will gives benefits to students. The actual tractor is attractive teaching tractor and virtual tractor Edutainment as interactive teaching tractor. The virtual tractor which is in graphic multimedia will attract students to explore and learn more about the tractor. The virtual tractor Edutainment is the combination of multimedia element which is graphic and interactivity, it will attracts students to learn and explore more about the specifications and all about the parts of tractor. This study also was conducted to explore the accessibility of the virtual tractor Edutainment to link and publish through internet.

**Index Terms**— Edutainment; Agriculture mechanization; Interactive learning; Multimedia.

## I. INTRODUCTION

The term Edutainment mix from the concept of education and entertainment [1]. This term is used to describe various forms of entertainment that also educate. Edutainment is a computer system that allows a user to access the information. Integration of technology allows edutainment to perform a wide range of functions, evolving into self-service Edutainment. An Interactive Edutainment is a computer terminal featuring specialized hardware and software designed within a public exhibit that provides access to information and applications such as for communication, commerce, entertainment and education [2]. So, this project is specialized for education as learning tool by using actual tractor and virtual tractor (Edutainment). Virtual tractor is referring to the combination of multimedia elements which is graphic and interactivity [3]. The user can click to the Edutainment to explore the content or information in this Edutainment. The interactivity means the relation between the user and Edutainment itself, which is the user free to click to any buttons or image that they want to display in the Edutainment [4]. The virtual tractor which is in graphic multimedia (Edutainment) will attract students to explore and learn more about the tractor. It is because by the combination of multimedia element like graphic and interactivity, it will attracts students to learn and explore more about the specifications and all about the parts of tractor.

This teaching tractor whether in virtual or actual way will be useful for students to know better about all the parts of tractor

and the functions as well. Rather than old tractor that was in farm, the existence of virtual tractor will be more helpful to the all students in Agriculture field because of the Edutainment can be linked to internet. The students and peoples that want to know about the tractor can get the information from the internet. Therefore, this study was designed in order to focus towards the tractor as a learning tool at a farm. Besides, Edutainment was developed in which of combination of multimedia elements between graphic and interactivity by using suitable software in order to develop interactive learning program.

## II. METHOD

### A. Actual Tractor

The actual tractor's development process starting from collecting information until labeling all the parts of tractor's body. The tractor's label was laminated and was double taped to tag at tractor's body part. The tractor was cleaned and repainted before stack on the labels on the tractor's body. The tractor was painted with white as the base color before being painted with the main colors; black and red. The tractor was labelled by tagging the colorful labels to all parts of tractor's body.

### B. Virtual Tractor

There are three types of software that were used to edit the Edutainment's template. The software that was used is Adobe Dreamweaver CS3, Adobe Flash CS3 and Adobe Photoshop CS3.

#### i. Virtual Tractor

Firstly, open up the Flash .fla file. Go to first frame of header. You will see text fields of the header. You just need to edit the text by double clicking on any text field. Figure 1 and 2 show the step how to change the header of the template by using Adobe Flash CS3.

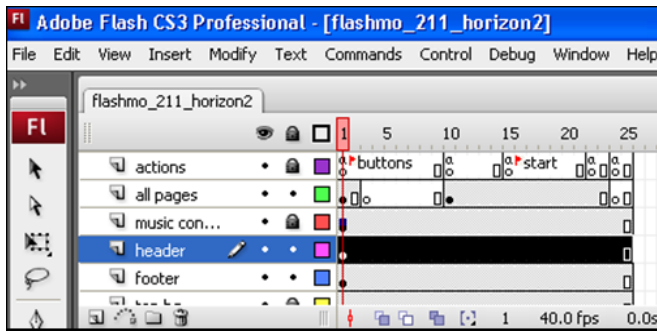


Figure 1: The work layout header

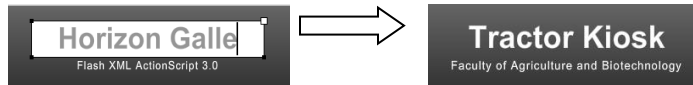


Figure 2: Edit the text

ii. Virtual Tractor Button's Name

The Figure 3 and 4 show the step on how to change the template's button by using Adobe Flash CS3. There are six buttons which is from part to contact. Change the buttons name as below.

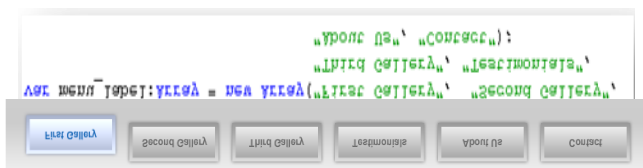


Figure 3: Button's name (template)

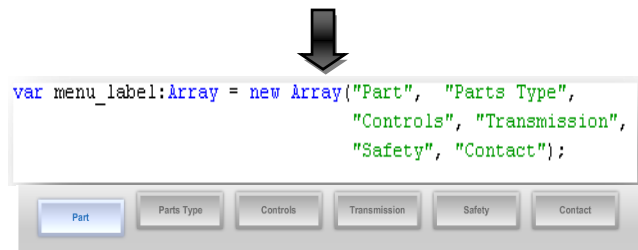


Figure 4: Button's name for tractor's Edutainment

iii. Insert the picture

The Figure 5, 6 and 7 show the step on how to insert the picture for tractor's Edutainment. The pictures edited for main photo and thumbnail was placed in the same folder. But rename the image differently for different dimension of image size which is the main photo (dimension: 750 x 500) rename as actual name of the tractor's part for example cooling system. Then, for the thumbnail picture (dimension: 120 x 80) rename as s\_ cooling system. Small letter "s" indicated for small picture compare to main photo size.

Then, go to last frame of all pages movie clip. You will see all text fields and the contact form on the stage. You just need to edit the text by double clicking on any text field. Finally, save the .fla file (ctrl + s) and export it to .swf output file (ctrl + enter).

iv. Edutainment Accessibility

First, open up the Flash .fla file. Then, click file > publish preview. Figure 8 shows how to check the accessibility of the Edutainment to link to internet. The result shows the Edutainment has an accessibility to publish to World Wide Web.

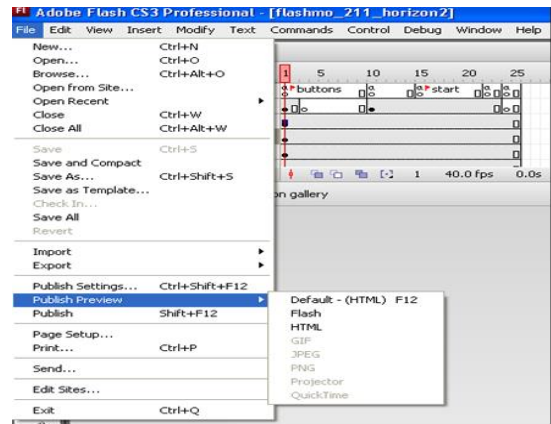


Figure 8: Publish preview the Edutainment

III. RESULTS AND DISCUSSION

The virtual tractor (Edutainment) has an accessibility to link to internet and everyone will have the chance to explore it at World Wide Web. Table 1 shows the result from the development of teaching tractor's study. The objective was achieved.

Table 1  
Units for Magnetic Properties

Result	Description
Actual teaching tractor	New teaching model at UniSZA's farm was introduced by the presence of actual tractor as attractive teaching tractor
Virtual teaching tractor (Edutainment)	Graphic virtual tractor as interactive teaching tractor (Edutainment) was developed
Internet	The Edutainment has an accessibility to link in internet

Figure 9 shows that the actual teaching tractor at the UniSZA's farm that was already painted with black and red color together with the label tag to the parts of tractor's body (Figure 10). Figure 11 shows the virtual teaching tractor (Edutainment) that was build using three softwares. This Edutainment included the information together with pictures to make it easier for students to know the tractor's body part better. Figure 12 shows the Edutainment publish preview to internet. The Edutainment has an accessibility to link to internet.

A. Actual Teaching Tractor

The actual teaching tractor is the abandoned old tractor branded of FIAT 540 at the UniSZA's farm that was improvised to become a teaching tractor which is the tractor's body part was labeled with the explanation about the functions of tractor's part. In order to develop the old tractor to become

teaching tractor, first the tractor needs to be more attractive by painted the tractor's body with bright color to make the old tractor looks like a new tractor. The paint color that was used is red and black because most of the tractor's color at UniSZA's farm is red and black. By using red color, the old tractor's body looks brighter and new.

The development of this actual teaching tractor was started with cleaning the tractor using sandpaper or brush to wipe and also remove the rust in the old tractor's body. The purpose of cleaning the old tractor's body is to ensure the color of tractor's body after paint is smooth without uneven surface because of rust.

Besides, the label was done after interpreting the information about the parts of tractor and the explanation of every part's function was explained shortly in order to let the students more understand and knows about the part's function easier.

The development of this actual teaching tractor will help students to know about the tractor's part. Before this, students only know about the certain part without knowing the every function of the whole tractor's body part. By presence of this actual teaching tractor, students will be knows better about the parts and the function of the tractor's part too.

#### B. Virtual Teaching Tractor (Edutainment)

The virtual teaching tractor Edutainment is the complementary for the actual teaching tractor [5]. The Edutainment is more interactive rather than actual teaching tractor because of the information and tractor's part in Edutainment is much compare to actual teaching tractor. Then, for actual teaching tractor only certain part was labeled, but for the virtual Edutainment, all the part including main part, part's type, control and instruments part was included.

Edutainment is a computer system or computer network that allows a user to access the information, perform data transfer or just for entertainment [6]. In this project, the virtual tractor (Edutainment) that was developed is purposely for education which is learning and teaching in virtual way. Before interpreting the information about the tractor in this Edutainment, draft the information that wants to include in this Edutainment first. After that, prepared the images of tractor's part that needs to put in the Edutainment.

One of the software that was used to create Edutainment is Adobe Flash CS3. This software is popular because of this program can be optimized for the web. In addition, flash provides for streaming content over the internet [7, 8]. So, the information is not stuck if the internet connection is low. The Edutainment will be loading and stream fast than usual web site. By this special feature of this software, Edutainment will

able to publish in internet. Actually there is three buttons in the Edutainment that was display the different part which are parts for main part of tractor which is outer part of tractor, second is the type's part. The third button is display the control and instrumental part of tractor such as clutch, brake, foot throttle and so on. The other three buttons is transmission, safety and contact information.

The students and peoples that want to know about the tractor can get the information from this Edutainment by the easy access through internet. The learning via internet is called as E-learning. According to [9] defined E-learning as the entire technological, organizational and management systems that facilitates and enables students learning via internet. Technology mediated learning theory suggests various e-learning systems characteristics as part as any assessment of such systems. E-learning systems characteristics are defined as the attributes (or features) associated with e-learning systems.

#### IV. CONCLUSIONS

The actual teaching tractor and the virtual teaching tractor (Edutainment) is two approaches that was used for education which is for teaching and learning in actual and virtual way. The Edutainment is virtual way of learning by adding some value of attractive and interactive with the combination of graphic (images). The difference between actual and virtual is the actual teaching tractor located at UniSZA's farm and virtual teaching tractor (Edutainment) is in computer program and can publish to internet.

#### REFERENCES

- [1] Alessi, S. M. and Trollip, S. R. , *Multimedia for Learning: Methods and Development*, Third Edition. Pearson Education Company, 2001.
- [2] Bishop, S. , *Adobe Dreamweaver CS3 illustrated*, First Edition. USA. Thomson Course Technology, 2008.
- [3] Chenarbon, H. A., Minaei, S., Arabhosseini, A. , "Replacement age of agricultural tractor (MF285) in Varamin region (case study)," *Journal of American Science*, vol. 7, no. 2, pp. 674-679. (ISSN: 1545-1003), 2011.
- [4] Landers, A. *Farm Machinery, Selection, Investment and Management*, First Edition. Farm Press, 2000.
- [5] Martin, J. W. and McColly, H. F., *Introduction to Agricultural Engineering*, FirstEdition. Axis Books (India), 2010.
- [6] Harun, J., Aris B., Tasir Z, *Pembangunan Perisian [2] Multimedia: Satu Pendekatan Sistematis*, First Edition. Malaysia, Venton Publishing, 2001.
- [7] Rose, C. and Binder, K. Sams, *Teach Yourself: Adobe Photoshop CS3 in 24 Hours, First Edition*. Sams Publishing, 2007.
- [8] Shuman, J., *Adobe Flash CS3 revealed*, First Edition. Thompson Course Technology, 2008.
- [9] Levy, Y. *Assessing The Value of E- Learning Systems*. USA. Information Science Publishing, 2006.

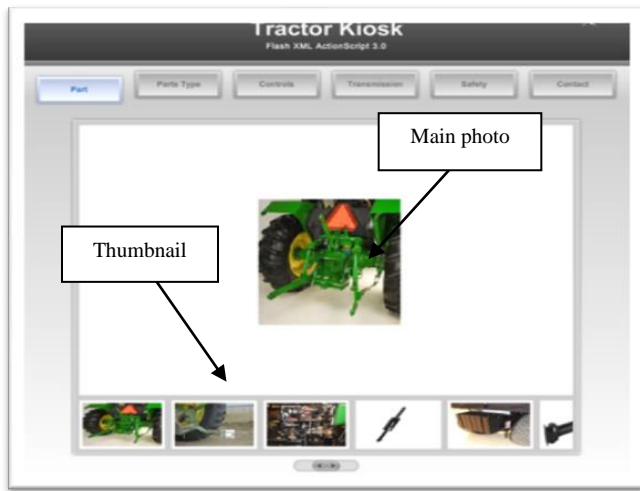


Figure 5: Pictures (main photo and thumbnail)

Edit the picture to <Preset sizes: 750 x 500 pixels> for main photo.

Click File > Open. Click photo.

Create new file. Click File > New.

Name: cooling system

Preset sizes: 750 x 500 pixels

Mode: RGB Color

Contents: White

Click ok

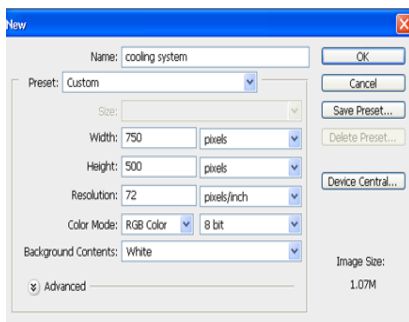


Figure 6: Insert the picture's information in the task box

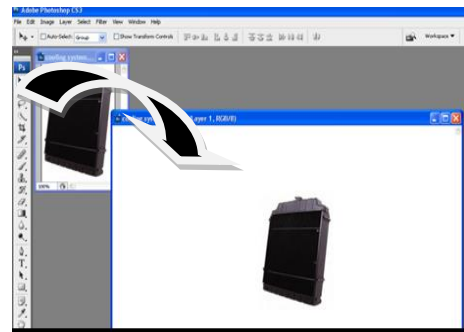


Fig. 7. Move the image to new image file

Move the selected image to new image file > Click move tool and drag the image to new image file

Save the image as jpeg file format. Click File > Save As. Name the file as for example cooling system. Choose JPEG format.

Actual Teaching Tractor



Figure 9: Actual teaching tractor at UniSZA's farm



Figure 10: Tractor was labeled

Virtual Teaching Tractor (Edutainment)

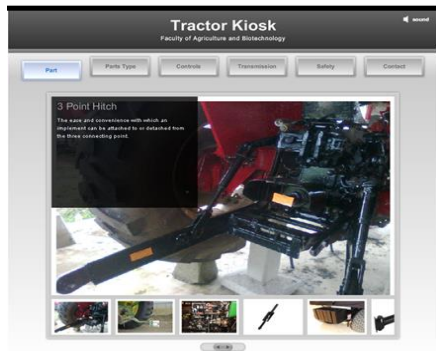


Figure 11: Virtual teaching tractor (Edutainment)

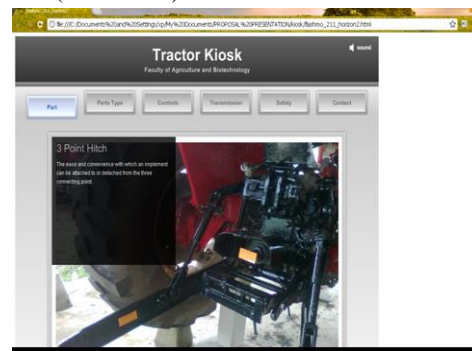


Figure 12: publish preview of the Edutainment to internet