GET2GETHER: THE WEB-APP THAT CAN WORKS WITHOUT THE INTERNET

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Highlights: Malaysia has long recognised the importance role of Information and Communication Technology (ICT) to encourage the national development. The government support for the use of technology in education was strengthened by the launch of 1Bestari.net in 2012. Through this project, over 90 per cent of public schools in Malaysia were equipped with Internet access (PEMANDU, 2014). In 2017, the government confirmed that almost seventy per cent of the rural schools in Malaysia were provided with Internet broadband (Bernama, 2017). However, the research done through this study has found out that eventhough the rural schools were installed with Wi-Fi router, the Internet connectivity was very low and unstable. Therefore, this study aimed to design a system which is affordable and able to meet this condition. The teachers and students are able to communicate and use the proposed system by connected to the school's Wi-Fi, with or without the Internet connection.

Key words: *Rural schools, Information and Communication Technology (ICT), Information and Communication Technology for Development (ICT4D), Interaction Design, Digital Storytelling*

Introduction

Malaysia has introduced various programs to support the integration of ICT in education. These included some of the major ICT schemes such as of the Smart School Project, computer laboratories in schools including those in remote areas, WebTV and school access centres (Shamsuddin, n.d). The government's objective to bridge the educational and digital gap between rural and urban students can be seen through the various proposals outlined in the Malaysia Education Blueprint 2013- 2025, which aimed to meet the requirements of rural students including aboriginal (Malaysia Education Blueprint, 2013). However, despite innumerable initiatives taken by the government to reduce improve the ICT access in Malaysia, certain parts of the country are still lack behind others in terms of the ICT use and access, especially those in rural areas. Study conducted by Malaysian Communications and Multimedia Commission (MCMC) reported that rural users only accounted for 30% of approximately 28.7 million Internet users in Malaysia (Malaysian Communications and Multimedia Commission, 2018).

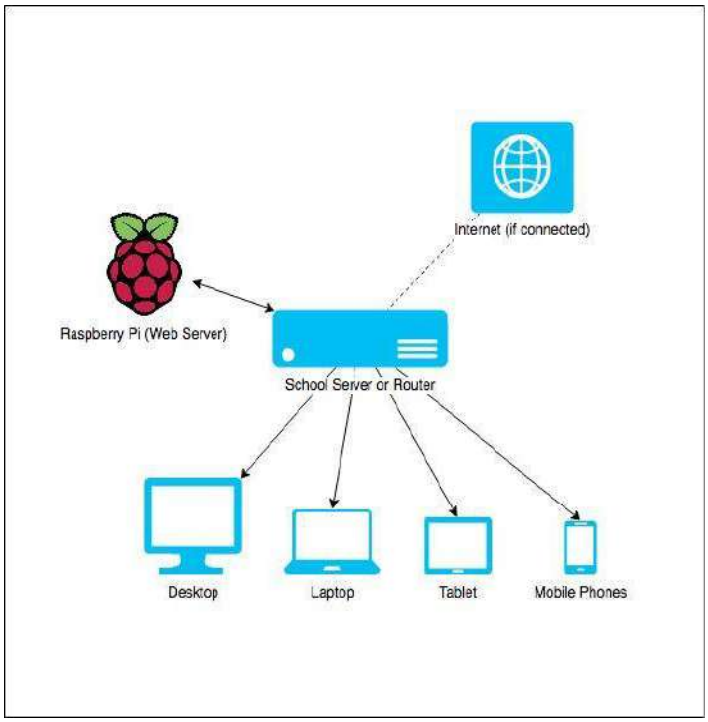
The COVID-19 pandemic that hits the world in 2020 has not just affected the normal ways of living but also affected the education landscape. The lockdown implemented in Malaysia since March 2020, has affected many sectors to temporary closed including the education sectors. The school closures have affected 8 million students in Malaysia (Azahar, 2020). In order to prevent the students from falling behind in their studies, Malaysia's Ministry of Education has demanded that online learning should be carried out to replace the face-to-face classes (Ministry of Education, 2020). However, a report by the government news agency has revealed that Internet services in rural areas are extremely limited and unstable, causing difficulties for rural students to join online classes (Kamarudin, 2020). This COVID-19 pandemic has clearly alerted the government to seriously take into account the importance of online teaching and learning as not all students are benefited from it due to lack access to broadband Internet infrastructure especially for those living in remote areas, eventhough online learning has long been introduced in Malaysia (Kamarudin, 2020). A study also reported that synchronous learning is not suitable for students in rural areas with unstable and low Internet connectivity, causing them to lose interest and lagging behind in learning compared to those who live in the urban areas with stable and strong Internet connection. Therefore, asynchronous learning is suggested to help learning for students with low Internet connectivity (Karim, 2020). These situation raises the question as to what types of system or application can be developed to help addressing the issue? What kind of system or applications that is low cost and scalable can be designed and developed?

System Development

Digital storytelling involves the creation of short multimedia narratives and has been shown to be useful in classroom settings. Besides being able to engage the students in conventional learning, digital storytelling is also reported to support digital literacy, and communication with and between semi-literate students. Building on this work, this study introduces a cross-platform digital storytelling application for rural students in Malaysia, called Get2Gether. The goal of this system was to stimulate creativity and promoting collaboration among the students by allowing them creating their own digital stories, incorporating the use of images, videos, drawing, text and sound. After deciding the kind of system that we were intended to develop, we need to define the platform that is suitable to run the system.

A web-based application is considered due to the limited Internet connectivity in the rural schools. However, the system can also be accessed via various platforms (tablet, smartphones, etc. The system can be used anywhere as long as there is a connection between the client and the server, provided the coverage is sufficient. Various studies have revealed that collaboration promotes active learning, student engagement as well as enhances creativity. Therefore, the system was developed to accommodate collaboration between the students as they connected to same network. We designed our web server that can be injected into the school network and accessed by the devices in the same network, in order to solve the problem with the Internet connection. This allowed teaching and learning activities to be conducted anywhere in the school or within the area covered by the network. The server also must have the ability to synchronise with a cloud server that can be accessed through the Internet. This would help ensure that the system can be used in collaboration with other schools in the future, provided there is a reasonably good Internet connection. According to recent data from the government, there are 873 community Internet Centre nationwide for the rural communities (Berita Harian, 2021). Therefore, most of the students of the rural school come from the same community or village, Get2Gether can also be installed at the community Internet centre at the village. Consequently, the students are able to access to the system as long as they connected to the community Internet centre wireless network eventhough the Internet connection is low or unstable.

Figure 1 How devices connected to the system



The System Features

Get2Gether was designed and developed based on the rural schools' environment and the rural students' requirements. The main novelty of Get2Gether is that it can works with limited Internet connectivity. Research done at two the rural schools in Kelantan showed that literacy was one of the main problems at the rural schools. Hence, the interface design is simple with less text. This is to facilitate the illiterate and semi- literate students. Besides that, Get2Gether incorporated multiple media such as text, video, audio, drawing, etc. This is to stimulates the students' learning and creativity by creating their stories using those media. As most of the rural students come from the low-income families, they cannot afford to own smartphones or tablets and totally depending at the school computers. Thus, Get2Gether was developed as multi-platform or cross-platform web application so that the students are able to use the system via any devices. The students are also able to collaborate to each other in order to create their stories with multiple devices as long as they are connected to the same Wi-Fi connection. Therefore, Get2Gether helps to promote collaboration and students' engagement.

As the conclusion, this innovation will help to make used the current Internet facilities available in the school or in the villages eventhough the Internet is unstable or low connectivity. It also helped to improve digital literacy among the students in rural areas as well as promoting online learning. Besides that, through Get2Gether, rural students are exposed to collaboration learning which helps to enhance their creativity and engagement.

System Commercialisation

This project aims to help rural education in Malaysia in terms of narrowing the digital gap by increasing digital literacy and promoting the usage of ICT in education. This is in line with the Malaysian Ministry of Education (MOE) goal stated in Malaysia Education Blueprint 2013- 2025. The Malaysia Digital Economy Corporation (MDEC), is also actively investing in the success of the use of ICT among rural schools. Therefore, we believed collaborating with MOE and MDEC via this research will help to boost the ICT usage among rural schools in Malaysia.

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