

Integrating Internet of Things (IoT) in Cultural Game Authoring Tool: An Innovative Approach in Maker Education

Pedagogical Innovations in Maker Movement



**University of
Nottingham**

UK | CHINA | MALAYSIA

MOSTAFA OSAMA MOSTAFA ABDULRAZIC,

UNIVERSITY OF NOTTINGHAM MALAYSIA

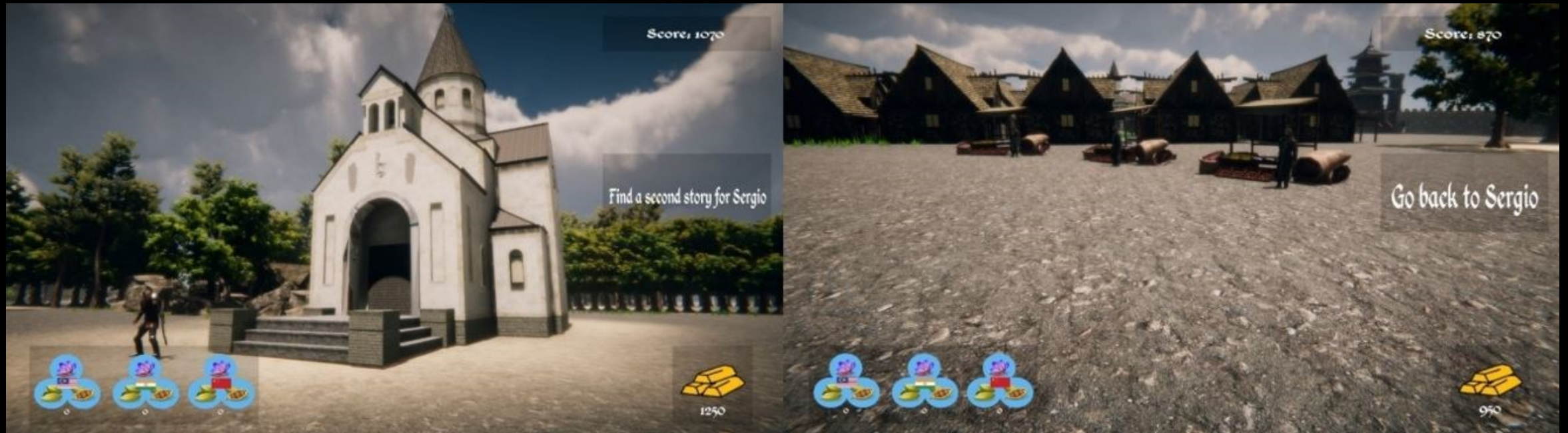
*THE 9TH INTERNATIONAL ELECTRONIC CONFERENCE
ON SENSORS AND APPLICATIONS 2022*

Overview

- Cultural inclusion has become an important factor as countries have become diverse globally.
- For interesting the young individuals about cultural heritage, innovative approach needs to be employed .
- Hence, this research focuses on integrating Internet-of-Things (IoT) in a serious 3D game authoring tool.
- However, initial research needs to be conducted to find appropriate way of integrating IoT in the game authoring tool and the effective ways of doing so.

Methodology

- Participants initially played a short cultural game focusing on the history of Malacca where IoT was integrated as Radio-Frequency-Identification (RFID) cards for performing trading, or simple actions within the game. Game snippets are below.
- Afterwards, the participants tried to design a short scene using the serious 3D game authoring tool.
- Then they required to fill up a survey to demonstrate their interest in integrating IoT in the game authoring tool and how they would like it.



Methodology

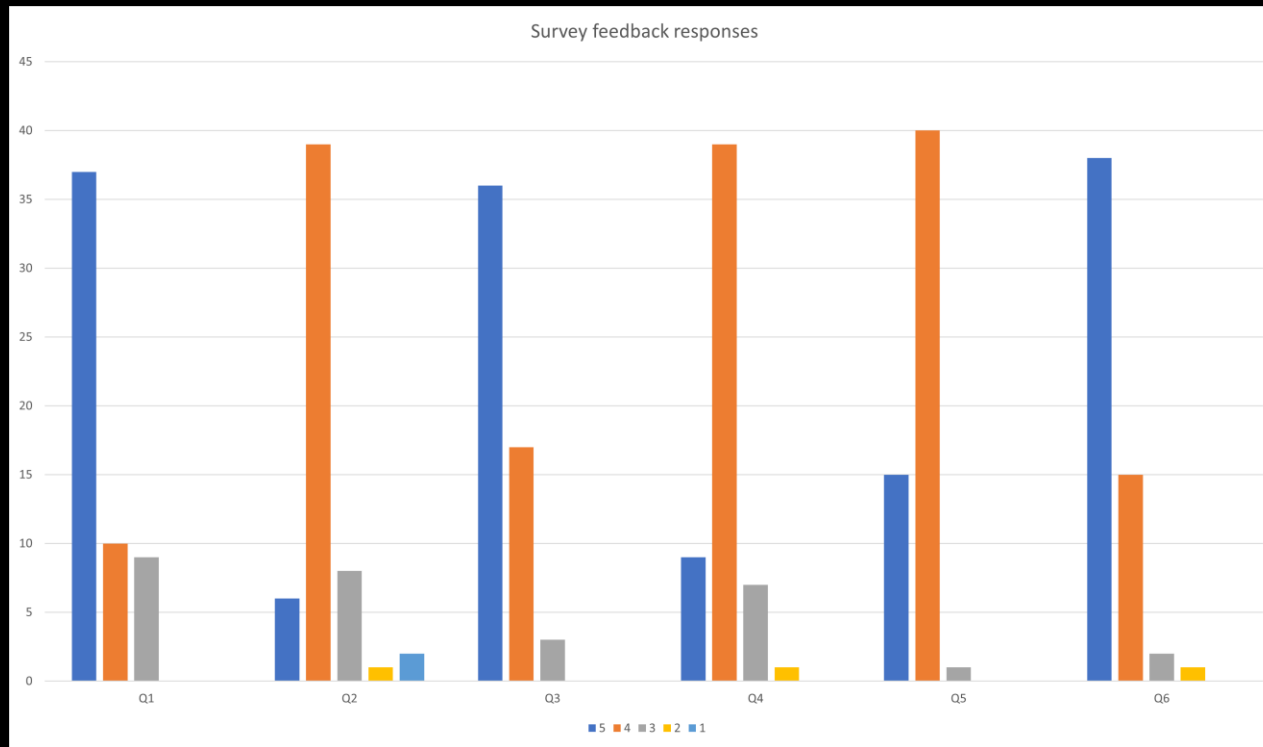


- The ease of interaction of the game authoring tool was evaluated. The participants used the prototype to make an example scene as shown.

Survey Questions

- Q1: Do you think cultural game authoring tool will help people share cultural heritage in an immersive way?
- Q2: Do you think integrating IoT in the form of RFID cards in this cultural game authoring tool would be engaging?
- Q3: Did you enjoy making a short game scene with the game authoring tool?
- Q4: Would you like to use RFID cards as a form of IoT integration in your cultural game?
- Q5: Would you want to use the RFID cards for performing actions in the game?
- Q6: While designing your own game scene, did you find the game authoring tool hard to use?

Survey



- The participants were young individuals aged 11-15 years old.
- Most of them found the game authoring tool easy-to-use and mentioned that this form of immersive cultural heritage storytelling or sharing is beneficial and interesting.
- However, from the study, it can be concluded that integrating IoT in the serious 3D game authoring tool is not a necessity but it can be simply integrated for more participant involvement.

Thank you!