Smart Home Interaction using Augmented Reality with Internet of Things

Abarajithan LV

ABSTRACT

- To constitute a suitable solution for IoT interaction.

- To replace the existing interface with Augmented Reality (AR) technology.

- To offer perceptually enriched end-user experiences through AR.

- To interact with real world objects by providing a virtual control panel

INTRODUCTION

- Smart devices are becoming increasingly common and technologically advanced.

- Typical interfaces for IoT objects are remote and Graphical User Interface (GUI) based.

- AR is the provision for the physical surrounding context. Users can directly interact with the virtual objects that are placed on the physical world.

- This implementation of AR interface to IoT will effectively enrich the user experience.

EXISTING SYSTEM

- Users are provided with a button or sliders to control the connected devices.

- Valuable IoT services but outdated GUIs.

- Not concerned with physical surrounding context.

- Currently IoT is thought of more as an infrastructure, and the method of interaction is still a problem.

PROPOSED SYSTEM

- Augmented Reality interface to interact directly with the physical objects.

- A new perspective view from user's context.

- Extending the use of IoT in further more fields.

- Realistic and fun to use.

LITERATURE SURVEY

S.no	Paper	Author & Publications	Methodology	Demerits
1	Providing IoT Services in Smart Cities through Dynamic Augmented Reality Markers	David Chaves-Diéguez 1,*, Alexandre Pellitero-Rivero 1 , Daniel García-Coego 2 , Francisco Javier	Internet of Things (IoT) and its capacity to manage and interconnect thousands of sensors.	Not all devices support AR markers technology.
2	Augmented Reality Enabled IoT Services for Environmental Monitoring Utilising Serious Gaming Concept	Boris Pokric´ * , Srdjan Kr ̄co, Dejan Draji ˇ c, Maja Pokri ´ c,´ Vladimir Rajs, Živorad Mihajlovic, Petar Kneževi ´ c, and Dejan Jovanovi ´ c´ DunavNET doo, 21000 Novi Sad, Serbia	combining AR based serious game with the data gathered from the IoT environmental monitoring service.	These AR devices needs special hardware's and the cost is high.

FLOW DIAGRAM
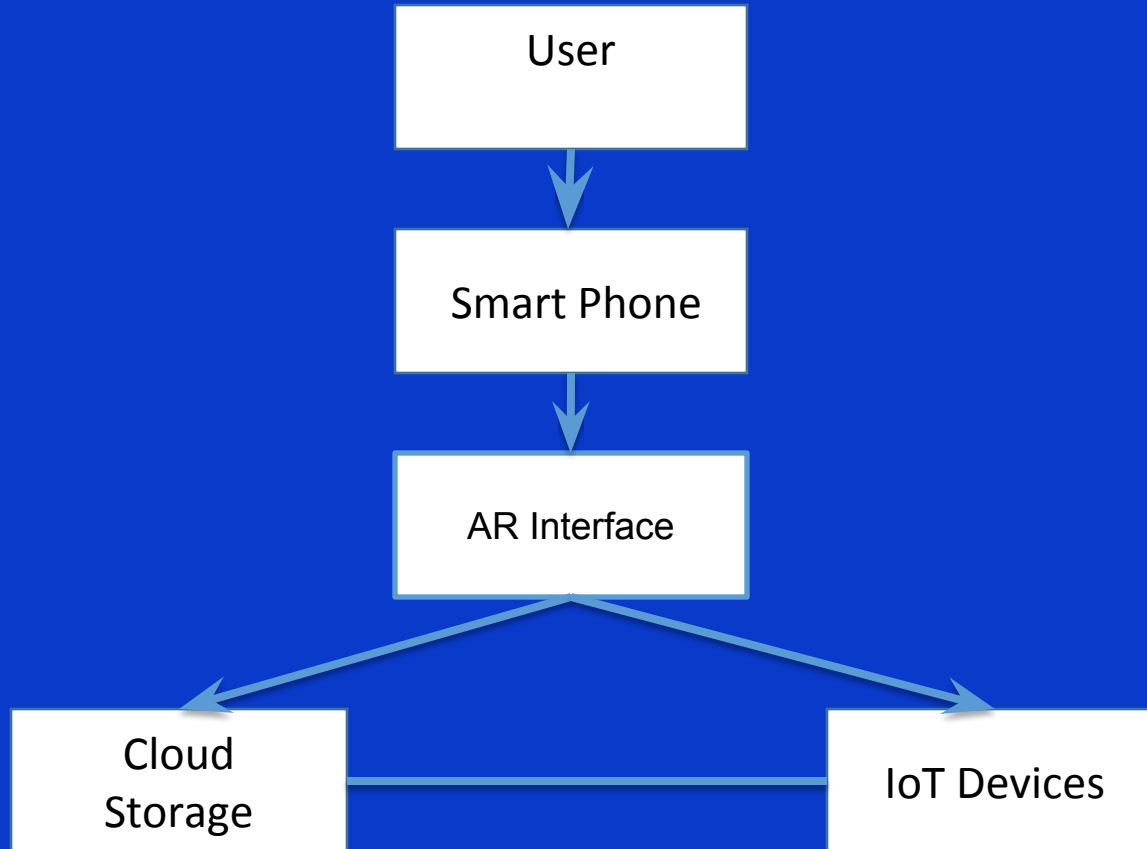
MODULES

- Implementing AR interface.
- Connecting to cloud storage.
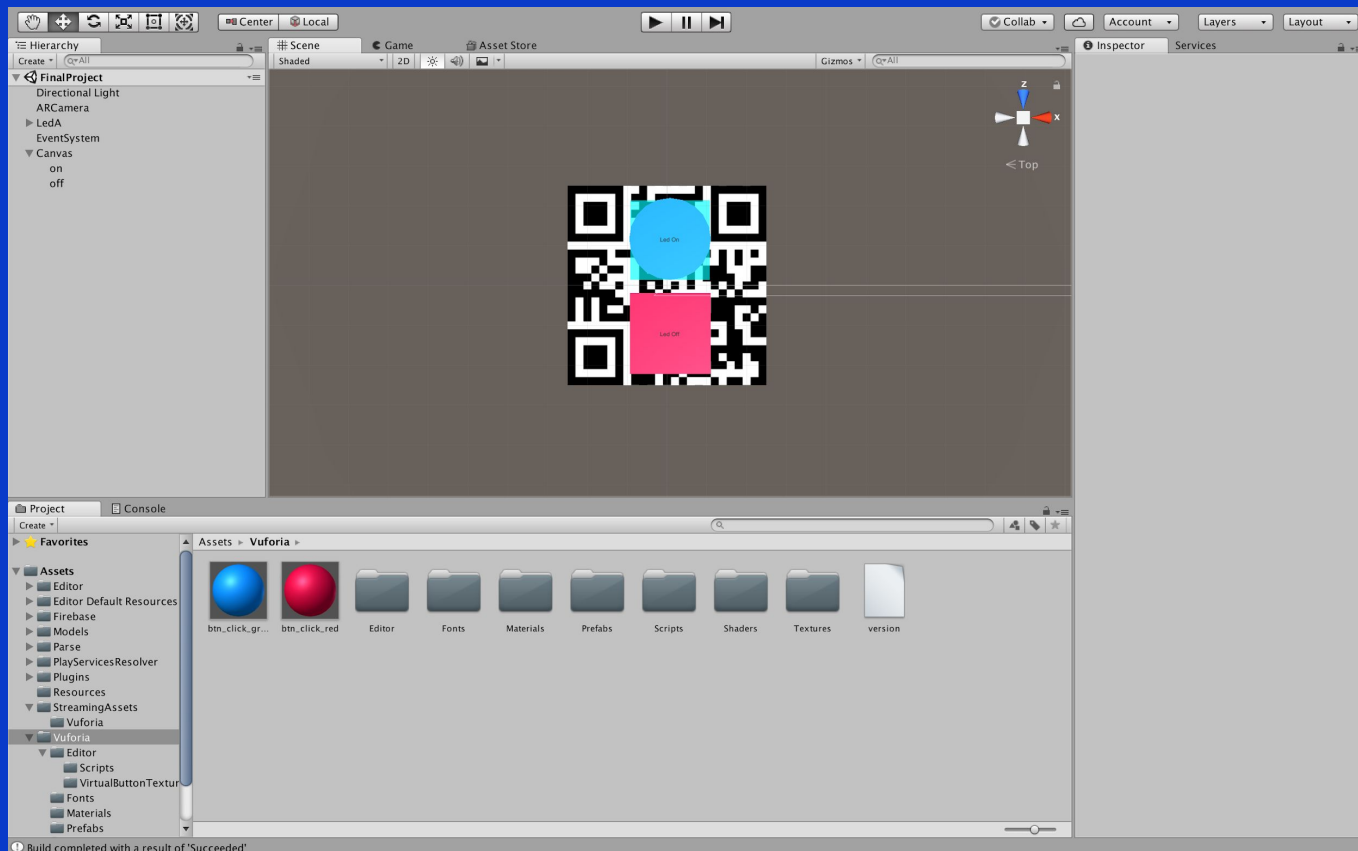- Setting up IoT devices.

IMPLEMENTING AR INTERFACE

- Detecting pre-defined objects.
- Placing interactive virtual buttons on physical objects.

IMPLEMENTING AR INTERFACE

- Unity tool to place 3D virtual buttons.
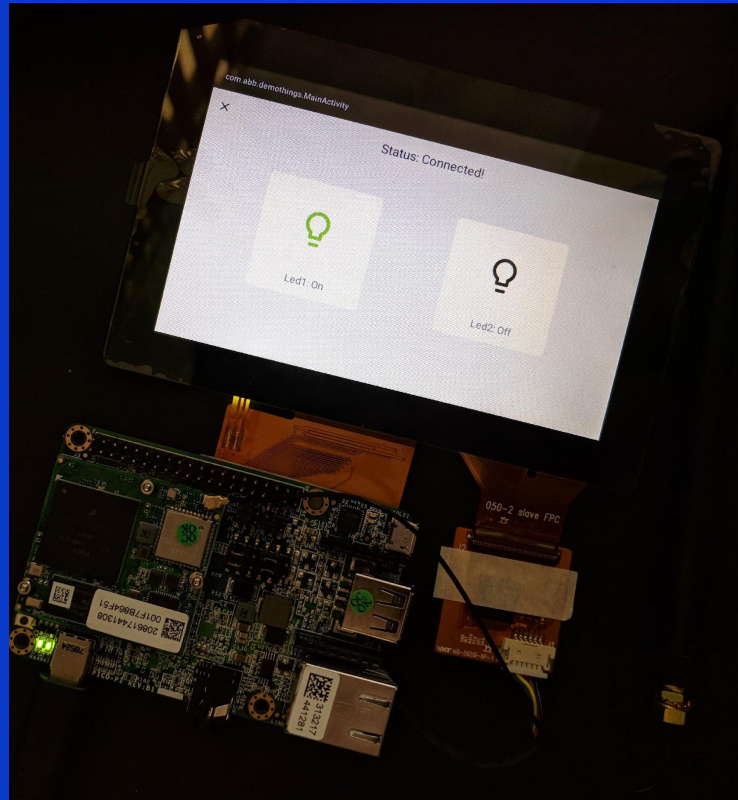- Vuforia library to detect objects in real-world.

CONNECTING TO CLOUD STORAGE

- Storing the button's current state to the cloud.

SETTING UP IOT DEVICES

- The IoT device reads the data from cloud and updates it's state accordingly.

FUTURE ENHANCEMENT

- Future plans include the continuous enhancement and testing of the prototype for it to be applicable to a truly large number of objects (i.e., hundreds of objects) with several distinct tracking and recognition features.
- Improving the recognition of virtual button outside the target image.

CONCLUSION

- In many cases the GUI the mobile is difficult to use for the disabled people.
- This system uses AR technique for interfacing which is getting increasingly popular for controlling of home appliances.
- Instead of 2D buttons, 3D switches will appear which gives a familiar interface to the user.

REFERENCES

- D. Jo and G. J. Kim, "In-situ AR manuals for IoT appliances," in Proc.IEEE International Conference on Consumer Electronics, pp. 411-412, 2016.
- L. Muller, I. Aslan, and L. Krußen, "GuideMe: A mobile augmented reality system to display user manuals for home appliances," in Proc.Advances in Computer Entertainment, pp. 152-167, 2013.

THANK YOU