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A Case Study Regarding the WIFI Bluetooth-based Implementation in Smart Narrow Field Communication

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ACASESTUDYREGARDINGTHEWIFI-BLUE-TOOTH-BASEDIMPLEMENTATIONINSMARTNARROWFIELDCOMMUNICATION

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A Case Study Regarding the WIFI Bluetooth-based Implementation in Smart Narrow Field Communication

J. Varsha Benarjee ^α, B. Hemanth Kumar ^σ & K. Raghava Rao ^ρ

Abstract- A Smart Narrow Field Communication (SNFC) deals with the wireless tag system which is developed through devices. Generally, on the internet it is hard to read long contents of the URL Present. On the internet these URL can be converted into QR code and NFC (Near Field Communication). First of all a device which is useful for wireless applications is given a name and considered as a tag. This device is used for recognizing a target content. Both of these are taken into a relation the URL are maintained on our cloud system along with the device name. Not only the device name the system also considers other user contents like gender and age in order to identify the target content. In Smart Narrow Field Communication all common device can be used as a tag. Ex: WIFI router, Bluetooth mouse etc. keywords: WIFI tag, Bluetooth tag mouse, Smart Narrow Field Communication, NFC, QR code.

I. INTRODUCTION

Now-a-days the main important task is for leading a user can see both the printed content on the website with some more additional information. We have identified a new code called "QR code" which is printable and cheap and it is one of the most famous solutions. Another alternative for this purpose is Near Field Communication. One draw back for this type of Communication is both request the user to both parties come to nearer space. On the other hand, the information cannot be transferred to multiple users at the same time. Hence, another method which can transfer information to the multiple users should be proposed and it should be low cost.

Taking all these into account, there is a method called WIFI-based tag system called WIFI-tag is proposed. In WIFI-tag System estimate BSSID and ESSID of WIFI which are access points as a tag. In the same way, WIFI assumes the terminal can scan these information. As we know WIFI access points are widely spreader, there is a advantage as it low cost. In order to maintain the maximum and minimum values of the tag we need to maintain a threshold for the signal which has

been received (RSSI). It helps to notice the deployed tags. However, for some positioning systems which are based on WIFI, we don't need to get accurate and correct position but we need to realize a easy and cheap but useful wireless tag system. This type of system in very low in cost, terms.

The drawback of WIFI-tag cannot be used in current IOS, so we extend to deal with Bluetooth, where we develop particular SDK's for two operating systems IOS and Android. Generally IOS cannot connect other than the devices which consists of other softwares. This may be a major problem regarding the transfer of data. Thats the reason why we are using the wifi tag and Bluetooth tag for communication. This method provides us a scope for effective communication.

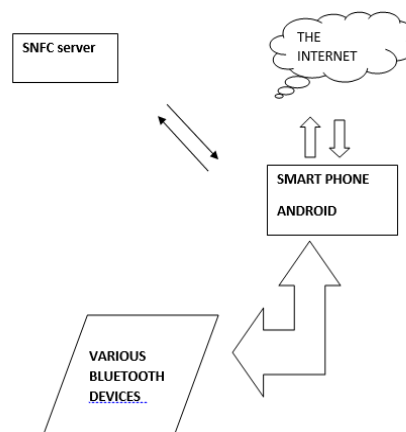


Figure 1 : System architecture of SNFC

points is not allowed to use in current iOS. It results that WIFI Tag works only on Android.

Therefore, we extend WIFI Tag to deal with Bluetooth, and change the name to SNFC. In addition, we develop SDKs (Software Development Kit) for both Android and iOS. This is because we should prepare a library for application developers in order to spread SNFC widely. Furthermore, we develop a content

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registration application for preventing from improper registration by malicious users.

II. SYSTEM ARCHITECTURE OF SNFC

Figure-1 is the model representation of SNFC, where the components are divided as following 1.SNFC client 2.Tags for SNFC 3.The Internet 4.SNFC server.

SNFC application for the client Processing are installed on smart phones and in various tablets. Now we have previously developed software Development Kit is considered and they can be easily embedded into the required applications by the application developers. As we are dealing with Bluetooth devices, we can use both the Android and IOS where it is used as a client terminal. As in IOS there is still allowance of Bluetooth scan. Some other kinds of Bluetooth devices are wireless headset, wireless mouse. These can be used as tags for SNFC. The relation between the device names and URL are managed by SNFC server. The entry of each section are maintained by the content holders which is done through a special application. The prominent function provided by a SNFC server whether the user context like gender and age in order to decide a proper context. The location of assigned context are meant to be internet. With the help of tag we can assign all the contexts on the internet. At the time of registering we can apply some conditions and the context holder may assign several URL's for the same tag. the same tag.

III. WORKING OF SNFC

According to the figure-1 gives a sequence of protocol in order to display the contents of the internet which are associated with a specific tag. The radio signals of WIFI and Bluetooth and scanned and SNFC clients. The second step considering the process is all the data that has scanned by client then all the data will be sent to SNFC server and the information of the user is also given to SNFC server. Now taking all this into account, the SNFC server considers and selects the particular URL and replies it back to the client. At the last stage the client can access to the URL which is obtained through the server and contents are obtained in the form of QR code. Before the introduction of SNFC we used NFC (Near Field Communication) in which there is a short range of high frequency signals with wireless communication technology that enables the interchanging and exchange of data between devices about a distance of 10 cm (centimetre or 4 inches). the interesting phase of SNFC is it can be used for sharing RDF queries and data with other devices using the android phones. Here we does not need to calculate the distance and number of access points. it is associated with the digital contents not with the location instead we use AP and for AP we use BSSID, ESSID, RSSI

The information is uploaded by WIFI which is scanned and given to the WIFI server where we can get a proper URL as in the form of response. so considering this process the real to virtual connection is realized easily and as an example associating the lab SSID to lab HP, once a visitor comes he can access a lab HP directly, when visitor enters in to the lab. Here we don't require a camera which is required for QR code as well as in this process a special card reader and also touch action also not required .No additional cost is required for this system as we already has existing WIFI system and through experiments the results are verified.

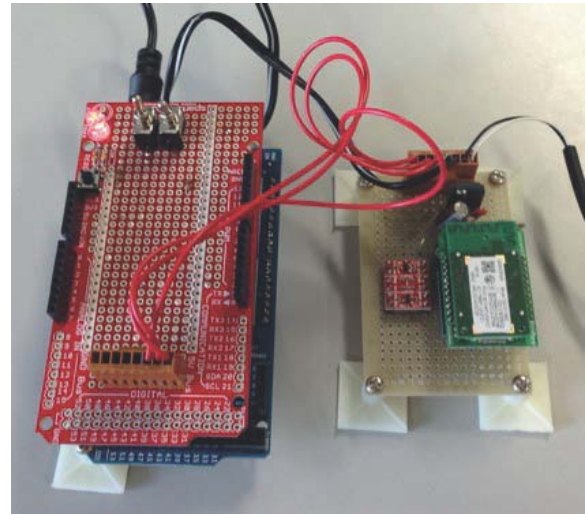


Figure 2 : Our developed WIFI-Bluetooth Tag

IV. CONCLUSION AND FUTURE WORK

In our paper we have presented both the advantages of Bluetooth- WIFI tag and implementation of new method of SNFC. Although the previous method of WIFI tag system in which the QR Code system has been enhanced and successfully carried out the URL contents in the internet to the client. There is a disadvantage with this method is that it cannot work with IOS. The problem is resolved by adopting SNFC method which uses both Bluetooth and WIFI as a tag. An SNFC tag based on Arduino network that deals with both the signals. SNFC components include SNFC server, Software Development kits of SNFC for both IOS and ANDROID has been developed. We can see the functioning of WIFI-Bluetooth tag by registering users and transferring the required content of information to the clients.

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