

SURVEY ON ORADOR SMART COMMUNITY

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Abstract : A Wi-Fi speaker connects wirelessly via your home network with your smartphone or tablet. It is limited to just one device. The speaker needs either a smartphone/tablet/laptop to play music. The Wi-Fi range is 46m indoors and 92m outdoors. There cannot be established a network within the speaker without any external device. Thus we are connecting 3 speakers to one device so that it can be control the speakers through the device. We are making use of Balena Cloud for configuring the multi devices.

INTRODUCTION

The speaker needs either a smartphone/tablet/laptop to play music. The Wi-Fi range is 46m indoors and 92m outdoors. There cannot be established a network within the speaker without any external device. Thus we are connecting 3 speakers to one device so that it can be control the speakers through the device. We are making use of Balena Cloud for configuring the multi devices. A Wi-Fi speaker connects wirelessly via your home network with your smartphone or tablet. It is limited to just one device. In our project we can control multi speakers through one device that can be a smart phone. We can vary the volume, can change the songs to which ever to be played so when the songs are played all speakers would be in a perfect sync irrespective of the speaker place whether it is placed in garden /room/hall etc. Since it's a Wi-Fi-Speaker the audio quality will be good when compared to the Bluetooth speakers.

LITERATURE SURVEY

This paper focuses on the history, tools, standards and implementation of Wi-Fi networks. However the main purpose of this research paper is to understand the various problems associated with the implementation of these WLANs and propose recommendation and measures to solve these problems and mitigate potential risk factors [1]

This explains the technology used for automotive Wireless Communication along with the various automotive applications relying on wireless communication. Automotive Wireless Communication gives drivers a sixth sense to know what's going on around them to help avoid accidents and improve traffic flow. The paper also describes VANETS (vehicular adhoc networks) and real world test network implementation. Finally, the paper is summarized.[2]

Bluetooth is a modern wireless short-range RF technology that is designed to communicate wirelessly between various machines. The popularity of Bluetooth as a technology grows as time flies by and is still growing and is being embraced in today's world. In this paper, we have embraced a way for brief survey on Bluetooth technology that will explain the architecture, issues, and applications.[3]

The ideal use case for this product would involve the ability to have a computer in one room processing music files while multiple speakers throughout the house are actually playing the music. This would be particularly useful in a party setting where one would like to keep a computer safe in a locked room while still being able to use it to play music. Additionally, if a party is there are sets of speakers in multiple rooms, they can all be synced to the same audio source. The major components of the system are the microcontroller receiver module (an ATmega 328p) and the computer program that sends the packetized audio data. This is to create a system that uses Wi-Fi to transmit audio from a source such as a laptop to a speaker system. The final product combines the use of embedded hardware, low level software programming, and the IEEE 802.11 standard protocol for wireless communication (Wi-Fi) to create a polished end device. The hardware and software was developed using a combination of original work as well as open source code and libraries. [4]

Bluetooth is an omnipresent communication technology, available on billions of connected devices today. While it has been traditionally limited to peer-to-peer and star network topology, the recent Bluetooth 5 standard introduces new operating modes to allow for increased reliability and Bluetooth Mesh supports multi-hop networking based on message flooding. In this paper, we present Blue-Flood. It adapts concurrent transmissions, as introduced by Glossy, to Bluetooth. The result is fast and efficient network-wide data dissemination in multi-hop Bluetooth networks. Moreover, we show

that Blue Flood floods can be reliably received by off the-shelf Bluetooth devices such as smartphones, opening new applications of concurrent transmissions and a seamless integration with existing technologies. We present an in-depth experimental feasibility study of concurrent transmissions over Bluetooth PHY in a controlled environment. Further, we build a small-scale testbed where we evaluate Blue Flood in real-world settings of a residential environment. We show that BlueFlood achieves 99% end-to-end delivery ratio in multi-hop networks with a duty cycle of 0.13% for 1-second intervals [5]

Automotive Wireless Communication explains the technology used for Automotive Wireless Communication along with the various automotive applications relying on wireless communication. Automotive Wireless Communication gives drivers a sixth sense to know what's going on around them to help avoid accidents and improve traffic flow. The paper also describes VANETS (vehicular ad hoc networks) and Real-world test network implementation. Finally, the paper is summarized [6]

Te shared storage is essential in the decentralized system. A straightforward storage model with guaranteed privacy protection on the peer-to-peer network is a challenge in the blockchain technology. Te decentralized storage system should provide the privacy for the parties since it contains numerous data that are sensitive and dangerous if misused by maliciously. In this paper, we present a model for shared storage on a blockchain network which allows the authorized parties to access the data on storage without having to reveal their identity. Ring signatures combined with several protocols are implemented to disguise the signer identity thereby the observer is unlikely to determine the identity of the parties. We apply our proposed scheme in the healthcare domain, namely, decentralized personal health information (PHI). In addition, we present a dilemma to improve performance in a decentralized system.[7]

An overview of home networks, as defined by the Home Networking and IT (HNIT) Division of the Consumer Electronics Association (CEA), is presented in this paper. HNIT's membership includes consumer electronics executives, marketing and market research professionals, engineers, and standards developers, which provide a broad perspective on this subject. The article first introduces the rationale behind the definition. From that baseline, it moves on to review some of the most critical issues home networks must address so as to meet the expectations of content and service providers- and ultimately those of the consumer. With that foundation, the article provides an overview of each of the major home networking protocols and standards, as well as their respective strengths and weaknesses. Also included is a discussion of the interrelationships between the major standards and industry specifications: in other words, how they will work together to create a seamless home network environment [8]

Quality of service (QoS) is a key problem of today's IP networks. Many frameworks (IntServ, DiffServ, MPLS, etc.) have been proposed to provide service differentiation in the Internet. At the same time, the Internet is becoming more and more heterogeneous due to the recent explosion of wireless networks. In wireless environments, bandwidth is scarce and channel conditions are time-varying and sometimes highly lossy. Many previous research works show that what works well in a wired network cannot be directly applied in the wireless environment. Although IEEE 802.11 wireless LAN (WLAN) is the most widely used WLAN standard today, it cannot provide QoS support for the increasing number of multimedia applications. Thus, a large number of 802.11 QoS enhancement schemes have been proposed, each one focusing on a particular mode. This paper summarizes all these schemes and presents a survey of current research activities. First, we analyze the QoS limitations of IEEE 802.11 wireless MAC layers. Then, different QoS enhancement techniques proposed for 802.11 WLAN are described and classified along with their advantages/drawbacks. Finally, the upcoming IEEE 802.11e QoS enhancement standard is introduced and studied in detail [9]

Recently, many new applications were developed on smartphones to facilitate our daily life. One of the potential approaches for information gathering and dissemination on smartphones is through cooperatively relaying among user devices based on short range wireless communications. To facilitate information dissemination and to improve user experiences, data transfer that neither requires connection setup nor interferes users' current operations is highly desirable. In this work, we study the feasibility of automatic information dissemination based on Bluetooth Low Energy (BLE) legacy advertising. To improve applicability, we additionally propose an automatic connectionless undirected information dissemination (ACLUID) scheme to effectively exchange information among users without knowing the BLE device addresses in advance. We analyze the performance of the proposed ACLUID scheme to investigate the effectiveness of message exchange. By applying the ACLUID scheme, users can opportunistically exchange some messages of interest when they are occasionally located within the effective communication range of BLE with BLE activities running in the background. In addition, we implement our scheme in Android-based smartphones and perform some experiments to examine the feasibility of ACLUID under various scenarios. According to the experimental results, a large message can be completely transferred from an advertiser to a scanner within a short period of time with a high probability.[10]

PROPOSED METHOD AND CONCLUSIONS

It's a Multi room Audio Wi-Fi Speakers. It has a Master slave technology. Any smart device can be single master connected to multiple Wi-Fi customized speakers with same or different Wi-Fi network. File streaming at both Master and Slaves using the hardware Raspberry Pi and SD card.

Wi-Fi speakers in this system are configured using Balena cloud, Connecting 3 Wi-Fi speakers to the master (where as using Bluetooth technology min 1 speaker & max 2 speakers can be connected) but can be extended to any number by maintaining the good quality of the audio when compared to Bluetooth technology. The Communication is between the Master and Slave through internet and Balena cloud.

The audio quality will be good as the audio is not compressed whereas in Bluetooth the audio is compressed resulting in poor quality. The audio played through this multi speakers will be at a perfect sync and the delay here is very small that can be negligible. The speakers can be controlled from anywhere it does not have to be next to the user.

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