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STUDY ON LOST INDOOR ITEMS TRACKER BASED ON IEEE 802.11 PROTOCOLS

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Abstract: ***In this study, we will use Wi-Fi (100 metres) to link the mobile application to the tags. The team will produce the tags and make the smartphone application available worldwide. The tags will be placed on items that are likely to be misplaced. To locate the object, we must first locate the tag, which is located at a distance from the cell phone and emits Wi-Fi signals. The programme will begin monitoring the tag as soon as the user touches on the name of the thing he needs to find. The tag is linked to the mobile application. The tag may be tracked by the phone via Wi-Fi signals. As a result, this smartphone app will effectively assist those who have a hectic schedule and are prone to misplacing their items. This covers people of all ages, from teenagers to the elderly. Redetect will come in handy for folks who have a habit of forgetting where they keep their precious stuff. Basically, this software will protect you from losing objects by allowing you to register their position and, when necessary, redetect it, it will offer you the directions to get there. It uses the ESP8266 to determine the item's current location, which can be readily monitored even if the item's position changes from its starting position. That's for Redetect it — always on the lookout for your misplaced belongings.***

Keywords – LAN, network, protocols, position, tracking.

1. INTRODUCTION

In the current situation, we have a few options for locating misplaced objects. We now have a few systems that may be used to locate missing goods such as keys. All of them are essentially key finder devices that operate with Bluetooth 4.0. Their objective is to cut down on the time it takes to find keys or other personal belongings. Bluetooth can communicate over a distance of 60 metres. The usage of Wi-Fi in our research will considerably increase the range of lost item detection, even at a distance of up to 100 metres. Infrastructure networks and ad-hoc networks are the two types of WLAN networks that may be created. The infrastructure application is intended for use in office environments or as a "hotspot."

WLAN technology can be implemented instead of a wired system, resulting in significant cost savings, particularly in established workplaces. A backbone wired network, which is connected to a server, is still necessary. The wireless network is then divided into cells, each of which is served by a base station or Access Point (AP) that serves as the cell's controller. Depending on the surroundings and the position of the Access Point, each Access Point may have a range of 30 to 300 metres. An Ad-Hoc network is the other sort of network that may be employed.

These are created by combining a number of computers and accessories. They may be required when a group of individuals gathers and needs to share data or need to access a printer without the usage of wire connections. Users can only connect with each other in this environment, not with a broader wired network. As a result, there is no Access Point, and specific algorithms inside the protocols are utilised to allow one of the peripherals to take over as the network's master, with the others operating as slaves. Infrastructure networks will be employed in this project, with tags (particularly ESP8266) serving as access points.

Depending on the surroundings and the position of the Access Point, the range of the Access Point might be anywhere from 30 to 300 metres. We'll use Wifi signals (100 metres) to link the mobile application to the tag. The tag is a chipset that includes wifi signal microchips, orientation sensors, and a power supply. The team will produce the mobile application and tags and make them available worldwide. The tags will be applied to the items that are most likely to be lost.

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To locate the item, we must locate the tag, which must be located at a reasonable distance from the mobile phone and emit Wifi signals as directed by the programme. The programme will begin monitoring the tag as soon as the user touches on the name of the thing he needs to find. The hit on of the tag will be indicated by a beep sound. Our project's purpose is to locate the misplaced item. Elderly individuals have a tendency to forget where they put their belongings on a regular basis and then spend time looking for them, which can be harmful to their health. Object loss, such as crucial medicines, property 'Will' papers, jewellery, insurance papers, or other documents, is a widespread concern among senior persons, and it can result in a significant financial or health loss. Adults in their busy and hectic life are more prone to forget where they keep their vital belongings, and when they need them, they squander their 'not to waste' time looking for them, becoming upset or disappointed and putting a lot of stress on their minds. As a result, some of them are unable to concentrate on their professions, resulting in decreased performance and increased stress.
Teenagers may also use this software to keep their belongings safe and secure while using it, such as their admission cards, essential notes, and files, which they are prone to losing. This programme is especially suitable for people with poor memory because it is really simple to use.
Alzheimer patients: Alzheimer's disease is a memory loss condition in which memory deteriorates with time. The major symptoms are memory loss and confusion.
Amnesia patients: Amnesia is a deficit in memory caused by brain damage, disease, or psychological trauma. Amnesia can also be caused temporarily by the use of various sedatives and hypnotic drugs.
The smartphone application will come in handy for people who have a habit of forgetting where they put their valuables. This software will save your goods from becoming misplaced by allowing you to register their position. When you require instructions, our mobile app will teach you how to get there with audible and clear narrations. With the aid of the tag, Lost Item Tracker will give an easy-to-use mobile application that will be able to keep track of goods that are likely to be lost regularly.
RFID is a system in which there is a reader to read many tags. It uses the technology of radio waves to send the information of an object in the form of a serial number. This information exchange will take place in limited range of the active tags and the passive readers.

The main components of this technology are tag, reader, power supply, antenna, access controller, software and server. Active Reader Active Tag - tags start sending information only when it is awoken by the reader or when it comes in the proximity of the reader. RFID has a very limited use in the real world.
In a grocery shop we put tags on the products and when the product passes through that reader, the reader will catch it. In the same way if a fridge can sense what is putting in it and what is taking out from it, it can also be done by RFID. We are standing on the brink of a new ubiquitous computing and communication era. Developments are under way to embed mobile transceivers into a wide array of additional gadgets and everyday items. Connections will multiply and create an entirely new dynamic network of networks – an Internet of Things.

2. PROPOSED METHODOLOGY

REDETECTIT consist of a package of a basic and the advanced version both being used with the help of an APP. The basic version is open to all members. The App can be downloaded using App Store and register themselves and start tracking. The advanced version consist of the IoT device named as REDETECTIT and TAGS. The tags are to be attached to the objects and they would be tracked through the REDETECTIT device and displayed on the mobile app. The mobile app is able to easily track the tag which is 45 meters of range easily within few seconds. For any object to be located by the user, the user is required to simply open the application, grant the various permissions asked by the application and then select one of the names of the object from the list that is to be located and let the application do rest of the work. Before finding the belongings the user has to attach the tag to the object they want to track. The details would be entered by the user for the reference and then a unique id would be generated which would be having the tag MAC address as the field. Hence tag is ready to be tracked.
REDETECTIT can achieve a huge impact on the society. In this busy and stressful lives, already adults feel so much burden, stress and tension which can lead to catastrophic diseases
like Diabetes, Depression, Heart diseases, Asthma etc. REDETECTIT would free all those stressed minds who keep thinking about the location of their valuables. Also, earlier people need to remember the location of the object but now they don’t need to give any extra burden to their mind. Secondly, people waste a lot of time and efforts to find their lost item. But now with just one tap they can effectively reach to their desired object in

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seconds. At the very first stage, the user is required to download the application from the App Store/Play Store which is a one-time requirement. The user is done simply required to open the application on his device. The user at any point of time might wonder where his desired article/object was kept and would start to find to it. With the help of our app, the problem of lost objects can easily be solved. The user is required to select one article (or object) from a list to start the tracking procedure. Once the user starts to follow the application instruction, the user will eventually come closer and closer to the object.

3. CONCLUSION

People of any age, occupation or gender can be a user of this app. Adults in their busy and stressful lives most likely forget the location of their important things. Teenagers can also use this app to keep their things safely and not creating any mess at time of usage. The app will provide a user-friendly interface in order to ensure the best user experience. It provides security by ensuring appropriate tracking information only being transmitted to the owner. REDETECTIT helps to reduce the efforts and time of the customers as with one tap they will be able to get the location of their lost item.

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