



Finding Commonly Lost Indoors For Visually Impaired

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Abstract

The world body WHO has studied the world population over the decades in 2022 that Nearly 2.6% of the world population has some of seeing difficulty permanent or temporary. And American Foundation for the Blind (AFB) approximates nearly 24-25 people in United States; they encounter various challenges inside or outside premises. One of the greatest challenge is finding common items like keys wallet reading glasses etc. In the doing the literatures survey phase emphasis by many scholars has been on finding way navigation ,reading plain text or bar code reading currency recognition, the prime Moto of this paper is to establish or come up with an effective algorithm for the visually disabled people finding day to day things like glasses keys cell phone handkerchief and other miscellaneous objects.

Introduction

In the developed and developing places have had an eye for future and have recognized the need and importance and potential of IoT , how it will reflect in the coming times and how it be reflected on the future so has proposed their need for national approaches in exploring IoT enabling technologies. Considering developed nations like example, the UK, USA governments st aside enormous funding for IoT research and technology initiatives (Fleisch 2013; Klair et al. 2010). The initiatives in these fields and applications supply the particular needs that direct the theoretical research. For instance, the Internet of Things Architecture (IoT-A) programme aimed to provide the IoT reference model and architecture in order to maintain application requirements and specifications.

Japan also joined the band wagon by proposing “u-Japan x ICT” and “i-Japan strategies” in 2008 and 2009; To let the world that it not much behind the usa, UK counties

Keywords: Blind and Visually Handicapped, Yolov5, RFID, Artificial Intelligence

Introduction

In current times we have 20 or 25 percentage of population are which are visually handicap find Locating lost or missing personal items the biggest challenge {1-2}

Finding lost personal belongings lost personal belongings [3]. It’s a biggest challenge or hurdle.

There are no camera-based solutions on the market that can help the blind locate personal goods. Creating a useful algorithm to assist persons with visual impairments in finding personal belongings like keys, wallets, sunglasses, mobile phones, and other items is the aim of this research.

By using vocal commands, the user may ask for help locating a certain object and then utilize a camera system to seek for it. An auditory signal will be generated when the system locates the desired object. According to the blind user's desire, our technique uses features from camera-captured photos use

By using vocal commands, the user may ask for help locating a certain object and then utilize a camera system to seek for it. An auditory signal will be generated when the system locates the desired object. According to the blind user's desire, our technique uses features from camera-captured photos.

These characteristics are then put up against previously calculated SURF features derived from reference photos of the request object stored in the database. According to the pre-determined thresholds for each object, the algorithm will generate an audio signal if matches are discovered to let the user know the object has been located.

Literature survey

In order to learn more about the kinds of items that are frequently misplaced and the usual methods people employ to do so in the home setting, Peters et al. performed a research [4]. The study's findings indicate that losing items may be a common problem for many people, and the loss rate can vary greatly by age group. The locus search (33%) refers to the area where the object is typically found; the exhaustive search (24%); the retrace search (19%) (i.e., one based on the sequential order of a person's prior physical movements); and the search method itself (14%) are the five categories into which common strategies used for finding lost objects can be divided.

Technology may provide useful and practical solutions to help people locate, verify, and retrieve their misplaced belongings. The interior search for lost or missing things might be aided by a variety of support options utilizing locator

technology and devices, such as radio frequency (RF) and active radio-frequency identification (RFID), have been developed. [5] [6] [7].

It might be challenging to pinpoint the location of a misplaced item in an outside setting. There have been several studies done on lost objects in an outdoor setting. A Bluetooth Low Energy (BLE) tag was used by Lac et al. to suggest a technique for estimating the location of a lost object in an outside setting. This method demonstrates that it can assist in locating objects that are situated outdoors, but it has some drawbacks that reduce its usefulness [8]. The only restriction is should be in door

However, in an outside setting, it could be more difficult to recall where a lost object was last seen. The adoption of technology in this case that increase the likelihood of finding missing objects by engaging the public can be beneficial.

Literature survey

By using vocal commands, the user may ask for help locating a certain object and then utilize a camera system to seek for it. An auditory signal will be generated when the system locates the desired object. According to the blind user's request, SURF is used in our technique to extract features from camera-captured pictures. These characteristics are then put up against previously calculated SURF features derived from reference photos of the request object stored in the database. According to the pre-determined thresholds for each object, the algorithm will generate an audio signal if matches are discovered to let the user know the object has been located

Time and money are wasted while also being expended during the search and recovery of lost and missing things [1]. A survey conducted in the USA in 2013 found that looking for lost objects yearly wastes around 177 billion dollars. Additionally, the survey found that people spend roughly 30 minutes each week looking for missing goods [2]. According to UK Finance, fraud losses in the United Kingdom were more than £1.2 billion in 2018. The company estimates that 14% of all card fraud losses in 2018 were from lost and stolen card instances [3]

In order to learn more about the kinds of items that are frequently misplaced and the usual methods people employ to do so in the home setting, Peters et al. performed a research [4]. The study's findings indicate that losing items may be a common problem for many people, and the loss rate can vary greatly by age group. The locus search (33%) refers to the area where the object is typically found; the exhaustive search (24%); the retrace search (19%) (i.e., one based on the sequential order of a person's prior physical movements); and the search method itself (14%) are the five categories into which common strategies used for finding lost objects can be divided.

Technology may be used to offer practical and helpful solutions to assist individuals in looking for, confirming, and recovering their lost property. To aid in the search for lost or misplaced objects in indoor environments, several support systems utilizing locator technology and devices, such as radio frequency (RF) and active radio-frequency identification (RFID), have been developed. [5] [6] [7].

The study's findings indicate that losing items may be a common problem for many people, and the loss rate can vary greatly by age group. The five categories into which common strategies used for finding lost objects can be divided are: locus search (33%), referring to the area where the object is typically found; exhaustive search (24%); retrace search (19%), based on the sequential order of a person's prior physical movements; and search method itself (14%).

It might be challenging to pinpoint the location of a misplaced item in an outdoor setting. There have been several studies done on lost objects in an outdoor setting. A Bluetooth Low Energy (BLE) tag was used by Lac et al. to suggest a technique for estimating the location of a lost object in an outdoor setting. This method demonstrates that it can assist in locating objects that are situated outdoors, but it has some drawbacks that reduce its usefulness [8].

However, in an outdoor setting, it could be more difficult to recall where a lost object was last seen. The adoption of technology in this case that increases the likelihood of finding missing objects by engaging the public can be beneficial.

My Method

It might be challenging to pinpoint the location of a misplaced item in an outside setting. But in the indoor setting in the room where the person is sitting can he few items in the room like bed table, chair, sofa, chest. So locating the mis placed itmem easier and aslo light frashed to the care giver of family to have soe idea where to look for the lost item. there by saving energy and time

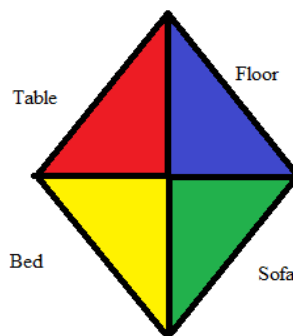


Fig1: Thecolor code square

We have written a color codes which will these for these misplaced items if in the proximity of room. If the object on BED BLUE TABLE red/ kept it order for VHP recollection



FIG 2: light bulbs giving possible indication of location of the item

The bulbs are kept in a linear order that can be felt and sensed, The table shown below table 1 elaborates where what along with color

Table 1: the color and notation with number

S.no	Item	color
1	Table	Red
2	Bed	Yellow
3	Floor	Blue
4	Sofa	Green

In the table 1 we have the place where the commonly left thing are forgotten by VH person

LOI Location of Item

Button to be pressured should be in order as the person is blind, should recollect best location and press accordingly table, bed, sofa, floor as per difficulty

LOI thing like

On Table LOI thing a value = (1)

LOI thing a value = on Bed (2)

LOI thing a value on floor =(3)

LOI thing a value on sofa =(4)

Algorithm

Start

// Button Clicking Process

if Button_Clicked:

Get_Color()

if Color == "Red":

Perform_Action_Red()

else if Color == "Blue":

Perform_Action_Blue()

else if Color == "Green":

Perform_Action_Green()

else:

Display_Error_Message()

// Response to Caretaker

if Caretaker_Nearby:

Respond_to_BlindPerson ()

// Time Estimation for Finding Things

Find_Things()

if Location == "Sofa":

Estimate_Time(2 minutes) // within the folds of sofa seats

else if Location == "Bed":

Estimate_Time(1 minute)

else if Location == "Table":

Estimate_Time(30 seconds) //by 30 seconds (at a single glance by caretaker)

else if Location == "Floor":

Estimate_Time(4 minutes) // It is more time consuming to locate the item in such larger area.

else:

Display_Error_Message()

End

Algorithm: For finding commonly misplaced items

$time\ to\ find = \sum_{i=1}^n LIO(item)$ eq1

Press buzzer by recollect locations of memory

Switches kept in order for ease of VHP(Visually Handicap People)

1 table, 2 bed, 3floor,4 sofa and press buzzer accordingly

$time\ to\ find(x) = \sum_{n=1}^n (LOI(item + time\ correct\ buzzer\ pressed))$ EQ 1

If the care giver in the same room or nearby time to find the item by EQ 1

The corresponding light flashed on phone and in the lady room. in of the VH person , we should have a board with 4 lights read yellow blue green on wall fig 2.this will make locating item easier for the helper or care giver time and money are wasted while also being expended during the search and recovery of lost and missing things [1]. A survey conducted in the USA in 2013 found that looking for lost objects yearly wastes around 177 billion dollars. Additionally, the survey found that people spend roughly 30 minutes each week looking for missing goods [2]. According to UK Finance, fraud losses in the United Kingdom were more than £1.2 billion in 2018. The company estimates that 14% of all card fraud losses in 2018 were from lost and stolen card instances [3]

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However, in an outside setting, it could be more difficult to recall where a lost object was last seen. The adoption of technology in this case that increase the likelihood of finding missing objects by engaging the public can be beneficial. It might be challenging to pinpoint the location of a misplaced item in an outside setting. There have been several studies done on lost objects in an outdoor setting. A Bluetooth Low Energy (BLE) tag was used by Lac et al. to suggest a technique for estimating the location of a lost object in an outside setting. This method demonstrates that it can assist in locating objects that are situated outdoors, but it has some drawbacks that reduce its usefulness [8]. Similar to this, a research by Chan et al. suggested a portable gadget that utilizes GPS and RFID to track the positions of tagged goods as it is being carried around. When an object is outside the RFID reader's range, the suggested RFID-based system notifies the user. A personal object that is carried about can be tracked and secured using the suggested method, but for the solution to work, the user must be able to recognize the alert at the appropriate moment. Additionally, missing things cannot be tracked by RFID-based devices beyond a range of 1.5 meters [9].

We have written a photon code which will these for these misplaced items if in the proximity of room If the object on left on table (1) which is red, Bed yellow (2), floor is (3) blue and sofa value is 4 green. Indication given to care giver easy to find misplaced items mark them by a color so area to look is very much reduced and idea can be texted to the care giver .So higher chances of success. Easily losable items such as goggles, cell phones, wallets, cards, etc can be easily traced with the help of a gadget know by the market name of TILE. It can make noise that shall help the companion as well as in times the blind person to find that particular object with ease Future work things last in outdoor settling It might be challenging to pinpoint the location of a misplaced item in an outside setting. There have been several studies done on lost objects in an outdoor setting. A Bluetooth Low Energy (BLE) tag was used by Lac et al. to suggest a technique for estimating the location of a lost object in an outside setting. This method demonstrates that it can assist in locating objects that are situated outdoors, but it has some drawbacks that reduce its usefulness [8].

However, in an outside setting, it could be more difficult to recall where a lost object was last seen. The adoption of technology in this case that increase the likelihood of finding missing objects by engaging the public can be beneficial. In future solar charged or carry a battery that make it had to carry. Here have been several studies done on lost objects in an outdoor setting. A Bluetooth Low Energy (BLE) tag was used by Lac et al. to suggest a technique for estimating the location of a lost object in an outside setting. This method demonstrates that it can assist in locating objects that are situated outdoors, but it has some drawbacks that reduce its usefulness [8]. Similar to this, a research by Chan et al. suggested a portable gadget that utilizes GPS and RFID to track the positions of tagged goods as it is being carried around. When an object is outside the RFID reader's range, the suggested RFID-based system notifies the user. A personal object that is carried about can be tracked and secured using the suggested method, but for the solution to work, the user must be able to recognize the alert at the appropriate moment. Additionally, missing things cannot be tracked by RFID-based devices beyond a range of 1.5 meters [9].

Results and Diagrams

In this chart area we show where the item is most frequently left unattended and on table count be easily located

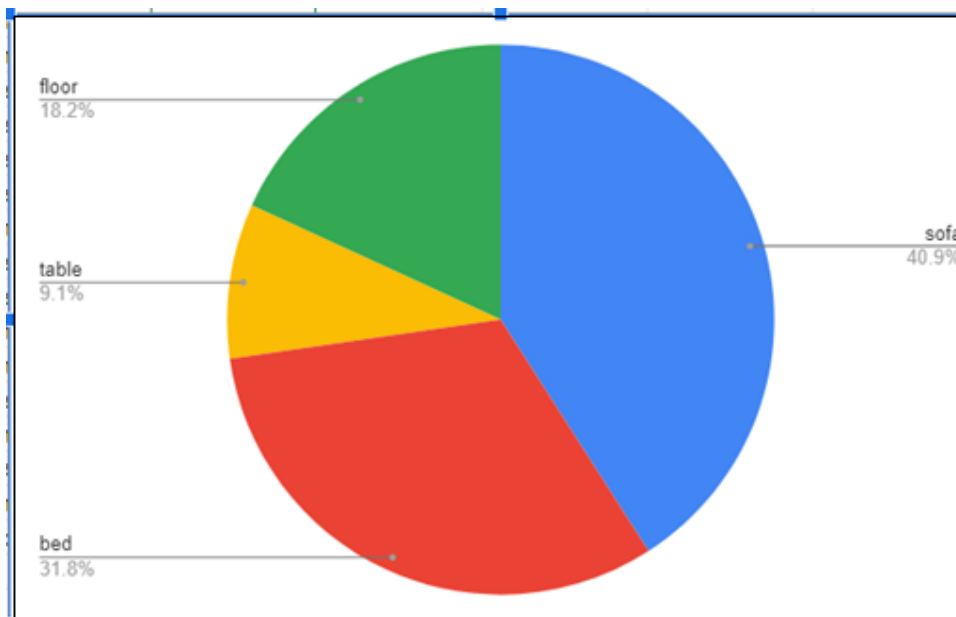


Figure 1: the pie chart for the data set available

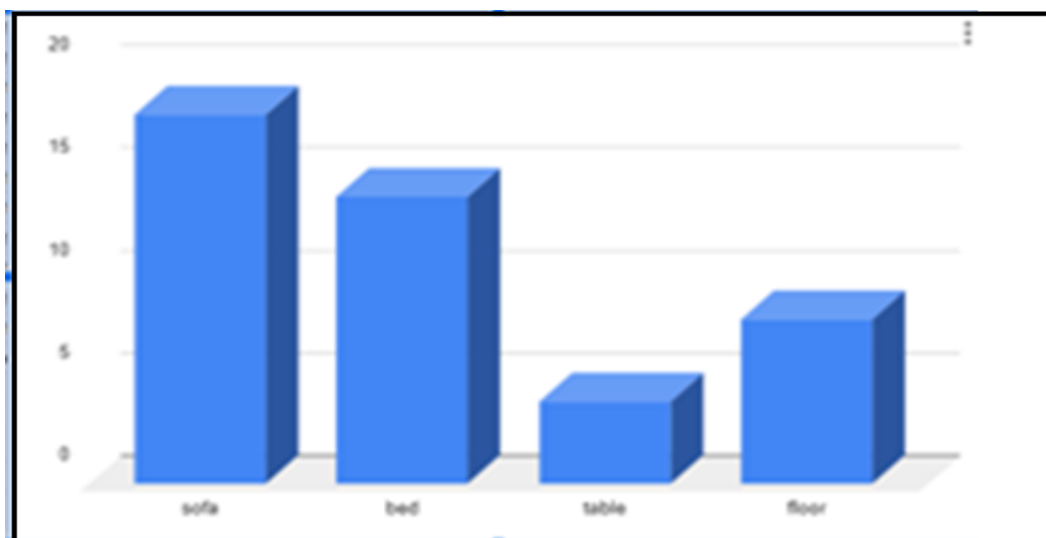


Figure 2: The histogram for the items left

Table 2: The data set we worked on in the paper

where at home sit max	person at home	type of blind(1=TB,2=NB,PB=3)	object left max where(1 table,2=floor,bed=3,sofa=4)
1	0	2	1
1	0	2	1
0	0	3	2
1	0	3	1
0	0	1	1
0	0	1	3
0	0	1	3
3	1	3	1
0	2	2	1
1	0	1	3
1	1	3	1
0	0	1	3
0	0	1	1
1	5	3	3
0	0	1	3

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0	0	1	1
4	1	2	3
0	0	2	3
1	0	2	2
0	0	1	2
0	0	3	1
0	0	1	2
0	0	3	3
0	0	2	2
3	1	1	2
1	5	2	2
0	0	2	1
3	2	3	2
0	0	3	2
0	0	1	3
0	0	3	1
1	0	3	3
0	0	2	2
0	0	2	2
1	0	3	3
1	0	2	2
0	0	2	1
0	0	1	1
2	0	3	1
1	0	3	1
1	0	1	1
1	0	2	3
0	0	3	1
1	2	3	1
0	0	2	3
0	0	3	2
1	0	1	1
0	0	3	3
2	0	2	1
1	0	3	1
4	1	3	3
0	0	2	2
1	0	2	2
1	0	2	2
0	1	2	1
0	0	3	2
0	0	3	2
0	0	1	1
1	2	3	2
5	2	1	2
0	0	2	2
0	0	2	1
1	0	1	3
3	2	3	1
0	0	1	3
1	1	2	1
0	0	1	3
0	0	2	3
4	2	3	3

Conclusion

As per the data shown sofa and bed at common places to find misplaced item as per the higher number of folds and larger area are sensibly by common sense

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