Lost Item Pager

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Project Proposal
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Introduction

The lost item pager will have a base unit that is stationary, consisting of a few “page” buttons and a digital display. Each of the buttons will “page” a small pager that is attached to the item you have misplaced. The digital display will show the user which item is being paged and if the item is beeping or out of range of the base. The pagers when triggered, will have LED’s flash and emit a beeping sound that will be locatable to the user. When the lost item is found the button on the pager ends the beeping.

Device Description

Below is a diagram of the basic set up of both the base and one of the pagers:
Base

The lost item pager base will transmit RF signals to each of the pager units. The base will transmit information containing an address allowing the base to page all of the pagers, but only activate the one you want. Most items lost will not in the same room as the base and so the transceiver in the base needs to be able to broadcast a radius of at least 100ft. To increase the useful natural of this device, a “message received” signal will be sent back to the base from the pager. With this return signal the base can tell the user accurately that the item is beeping, or that the device is out of range (if no return signal is received).

Pagers

The pager will be just like a “beeper,” when activated it gives off a beeping sound. They will have a “beep” consisting of three specific sound frequencies at once making it easier to locate by ear (determined by a research company studying how alarms can be more locatable to blind people). In addition to the beeping, LED(s) will be flashing, which will make it easier to locate and will also be hearing impaired friendly. The pager will have two possible ways to deactivate; one way will be to press that unit’s page button on the base again and the second possible deactivation will come from pressing a “found” button on the pager itself. The pager attached to the item will be designed to be a reasonable, pocket size thought the prototype in demonstration may be larger based on available parts.

User Benefits

Presently house phones are not as common as they were ten years ago; before everyone you know had a cell phone most people had a cordless phone at home. The cordless-phone was completely unrestricted and it was always misplaced. The solution to this problem was to place a “page” button on the base of the phone to make the handheld part beep and help you to figure out that it was under the couch for example. Unfortunately more than just cordless phones are misplaced at home and this is the basis of my project. The item pager is designed to help the user in their day-to-day life. It will make items that are commonly lost easier to relocate and save the user’s time and also mental anguish caused by not being able to find an important item such as one’s keys. The usefulness of this project can also be determined by how a person decides to use this product; since the pagers will be small like a keychain, they can be placed on almost any item. It can also be used for fun, such as the application as a “beer finder.”

Societal and Global Impact

I can see many impacts on society that can be future outcomes attributed to devices like the item pager; I will first mention some more beneficial impacts. One impact is the product ability to cut down on the need to replace many commonly lost and replaceable items such as universal remote controls, cell phones and keys. The RF pager idea could
be put to many uses even some I cannot predict now, such as, a reusable replacement to numbered tickets. People using an item pager could find it as a stepping stone to nonverbal communication between people and objects in the future. It would be pretty remarkable if your items could communicate back to you, to help you. This could the beginnings of human-to-device communication. Similar to star wars’ “R2D2,” products like the item pager may start a trend of non-living objects communicating non-verbally with humans.

There are a few ways technology advancements are considered un-beneficial to people. Many wireless devices are available today along with my project will be one more source of RF noise for other devices to filter out. Some researchers argue that exposure to low level fields of RF radiation for long periods of time can be harmful to a person’s health, though no proven cases are documented; this could become an apparent problem in the future as more RF devices become common. All the small helpful wireless devices appearing in our lives such as my item finder could contribute to more strict technology regulations regarding RF devices if problems do occur.

Another affect found in society from technology is technology dependency. An example of technology dependency is the alarm clock; people used to wake up with out an alarm clock, but today most people have at least one in their house and can’t wake up on time without it. Like the alarm clock removing people’s natural sleep cycle, the item finder may remove the need to remember where people place things, potentially increasing people’s dependence on the “item pager” or a similar device. This outcome is harmful, but we as a society could be heading in this direction of technology dependant behaviors.

**Comparison of Similar Products**

This project idea is not unique and many similar devices are found in many applications in society today. These devices are found in restaurants (usually in the shape of a coaster) to page people waiting to be seated, and are of course used in cordless phones sold today. In this section, I will show a few different item finding devices that are similar to my project and compare them to my idea. The difference I hope to make in my project is to add a level of personal convenience and additional user interface to this already useful idea. I show the price on a few of these items to give an estimation of quality of the product compared to the others.

**The “Keyringer”**

$29.95 a pair
KeyRingers are sold in sets of two and come complete with factory installed lithium batteries, key chain links, double-sided adhesive strips, and a stick-on magnet. It appears they communicate with each other; no base involved. Some of its features are a bright flashing light that makes it easy to find in the dark and double as a flashlight. The company also claims it has a loud distinctive sound that can be heard for hundreds of feet and that it has a long battery life—typically 12 months. The design is compact and weighs only 3/4 of an ounce. It is capable of responding from distances up to 300 hundred feet and it operates just like the page button on your cordless phone. They claim it is durable enough to withstand being run over by a standard size car, but my project won’t be put to that test.

The two key chains with no base seems like a solution that only works until you really lose one or misplace both at the same time. The rest of these products don’t use a base either, which I feel is not giving the user the entire capability of an item pager. I did not see any information on adding more keyringers to your page system, though as you can see it only has two buttons. It is possible that because the units come as a pair that they can activate other people’s keyringers also, which would be unfortunate. My design will use addressing in its signal allowing for system expansion and device recognition between any other item finder pager.

This company claims their product is loud, about 106 dB actually, which might be disorienting when in a small room. My project will be programmed with a sound wave that is locatable to the ear, a technique developed by a company to better help blind people locate objects. This locatable sound is produced using three specific ranges of frequency at once.

“Find One Find All”

This product is different, because each keychain is capable of paging any of the other five key chain pagers. It only weighs 1/2 oz. (including battery) but the range is only up to about 30 feet, depending upon surroundings. The LED on the keychain can also be used as a small flash light by holding down the number designated to that keychain. Holding down the 1 and 3 together or removing the battery is how the program is reset and item numbers can be changed. To help remind the user of which number corresponds to which keychain, the user can hold down 5 and 6, and the number of that unit is beeped aloud.
It is very creative that any unit can page another, however this could cause some frustration if while in the user’s pocket a button is pressed setting off a device when undesired. In my design the devices will only be activated by the base; the button on the pager is only for deactivating the “page” function. If all the objects with these key chains are misplaced there is no way to page them defeating the entire purpose of having this product. My project will have a base that is meant to be in a fixed position and will not be misplaced, preventing any problems due to misplacing an object.

The digital display on my design will make the device you are paging more obvious than just having numbered buttons with no display. With this display the user can see what actions are happening such as “paging” letting the user know a signal is leaving the base, then followed by “device beeping,” confirming that the pager is “on.” This display prevents the problem that would occur if no beeping is heard by telling the user the lost item is out of range, or has a dead battery. The display on the base will inform the user of the actions being taken by the base and the pager so that it is as useful as possible.

“The Sonic Key Finder Key Chain”

All you need to do is clap, whistle or shout. Any loud noise causes the Key Finder Key Chain to beep and the light to flash also handy for finding keyholes. Uses 2 small button batteries - includes 2 extra batteries.

This product is convenient because there is no need for another unit. However I have used a similar device, (“the clapper”) and I was very annoyed by how the TV or any loud noise would set it off. No one wants their keychain to beep at a time when they didn’t want it to, and that will not be a problem with my project. Also if you were using more than one of these devices, and you clap to find one object, it’s possible all of the units will respond, offering little help and more frustration. My project will not have this problem either, because it will be transmitting addressed RF signals, so only the unit you are paging will sound and no others.

Demonstration

I feel this project will be good for demonstrating with instant gratification of press the button, see the pager light up and beep. The cordless phone pager works well because the
base never moves and it is capable of a large range and more user feedback than a handheld to handheld system. My design will include all of the handy features of the cordless phone pager and add a few more conveniences. The final design of the pagers would have to be pocket size in order to fit on one’s keys and other devices without getting in the way however the prototype I show in demonstration may or may not fit this size depending on parts available to me. A nice feature of my project is that both technical and non-technical people will be able to understand the use of the product and how to operate it. I’m excited to start working on this it sounds like a good, useful and fun project.

Possible Future Additions
Some options I am been thinking about but are not necessary to the overall function are:
1. To make the LED on the pager work like a small flash light.
2. The base tells the user how close the pager is to the base.
3. Even more exciting would be to incorporate range finding to the device.
4. Use continuous polling to letting the user know if the battery died or if the item is not in range.
These are not necessary to the overall function of the device, but just some cool ways to expand the idea to be even more useful.

The products above and the information given on them were taken from the following web sites:
http://www.keyringer.com/item-finder.html
http://www.findonefindall.com/
http://www.sevendeals.com/p-633-key-finder.aspx