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CEF440: INTERNET PROGRAMMING (J2EE) AND MOBILE PROGRAMMING

DESIGN AND IMPLEMENTATION OF A MOBILE-BASED ARCHIVAL AND RETRIEVAL OF MISSING OBJECTS APPLICATION USING IMAGE MATCHING

TASK TWO: **REQUIREMENTS GATHERING**

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1. INTRODUCTION

In an era characterized by rapid technological advancement and an ever-increasing reliance on mobile applications, the need for innovative solutions to everyday challenges has never been more pressing. One such challenge is the distressing experience of losing personal belongings, be it a cherished item of sentimental value or a practical necessity crucial for daily routines. The emotional toll and inconvenience caused by such losses are undeniable, often compounded by the arduous process of attempting to retrieve or replace the missing objects.

Recognizing the urgency of addressing this issue, the proposed project sets out to develop a groundbreaking mobile application aimed at revolutionizing the archival and retrieval of missing objects through the power of image matching technology. This application will not only streamline the process of reporting lost items but also enhance the likelihood of successful recovery, thereby alleviating the stress and frustration associated with such incidents.

1.1. Requirement Gathering Process:

To ensure the success and effectiveness of the envisioned application, a comprehensive requirement gathering process will be undertaken, encompassing a series of meticulously planned steps. These steps will serve as the foundational framework upon which the entire project will be built, guiding the development team towards the realization of the specified objectives. The following is an overview of the procedures followed in our requirement gathering process:

Potential Stakeholder identification and analysis will precede **user requirements elicitation** which was performed through **Interviewing** and **surveys. Research** and **brainstorming** were later on performed to have a concrete understanding of the requirements of the identified stakeholders.

It's crucial to note the distinction between the requirements gathering phase and the subsequent requirements analysis phase. While the former focuses on identifying and documenting stakeholder needs, the latter involves a deeper analysis and interpretation of gathered requirements to inform the design and development process effectively.

NB.

Some Requirements gathered in this report such as the interview requirements are valid only to buea as an economy but their concepts can be generalized to other economies. As we shall see below

2.REQUIREMENTS ELICITATION: METHODOLOGY AND RESULTS.

Requirement's elicitation is a pivotal phase in software development, aimed at identifying and documenting stakeholder needs and expectations. In our project, interviews with entities such as traveling agencies, police, and taxi unions, as well as stakeholders from the community, serve to understand current practices and challenges in finding lost items, gather requirements directly from those involved, and validate assumptions about the problem domain. Additionally, surveys provide quantitative data and opinions, while brainstorming sessions foster collaboration and creativity, ensuring a comprehensive understanding of stakeholder needs and preferences to inform the development of an effective lost item retrieval system as well as to address some of the problems brought up while bringing out some of these requirements.

2.1. Stakeholder Identification

2.1.1. Who is a stakeholder?

A stakeholder is any individual, group or organization that has an interest in a particular project, initiative, or system. Stakeholders can influence or be influenced by the decisions and outcomes related to the project or system. They may have varying levels of influence, involvement, and stakes in the success or failure of the endeavor.

Brainstorming was done on the list of individuals or organizations to outline those who are deeply involved in the loss and retrieval of people's personal belongings, then interviewing of this parties was performed to know those who might actually like to be integrated to our system or not. After brainstorming, we identified parties such as:

- Random individuals (as the end users),
- The Development Team

As the main stakeholders. We also identified some actors or organizations that might have some relation or provide valuable information as to how they handle the report and retrieval of missing items in their fields. We recognized organizations such as

- The Taxi Union
- The police
- Traveling agencies

Below we shall look at the different interviews made on the different stakeholders and related organizations and later on the conclusion and analysis drawn from each interview on how to better our application.

2.2. Interviews

Interviews as means of requirements gathering was performed on the potential stakeholder organizations of the system to understand their functioning in order to be able to affirm if they are actual stake holders in our system or just different integrable services to the application.

The parties interviewed in our requirements gathering process included:

- Fako taxi drivers' union
- Masango and Diamond Travelling agencies
- Molyko police station
- Random individuals

We shall present the interview questions for each of these parties, some valuable responses given. And conclusions made from the interviews

2.2.1. Interview with Clerk of Buea Taxi Drivers Union

1) *Question*: How do you currently handle situations when a passenger reports a lost item in your taxi union?

Respond
Currently, when someone reports a lost item, they pay a 1000-francs registration fee which is ever done only once. Meaning if they are already registered then they don't have to pay this fee. The office secretary registers the complaint and shares it with other offices. If the item is found, the person might have to pay a recovery fee whose value depends on the lost item

2) *Question:* Are there any privacy or security concerns you would have regarding the way you return the lost items back to the owner (how do you know if you are returning the lost item to the right person)?

Respond
To ensure security, proof of ownership is required, like describing the lost items appropriately before it is ever shown or handed to the individual for example if a bag with items is missing the user should be able to describe what is inside the lost bag to be able to recover it from the taxi union. This helps confirm the individual is the real owner of that property. Additionally, a recovery fee is charged based on the item.

3) *Question*: Have you had any challenges in returning customer missing items?

Respond

Challenges arise when customers dispute the recovery fee or claim not to have money. Misunderstandings can occur, but ultimately, they aim for mutual understanding since both sides depend on each other.

4) *Question*: What features would you consider most valuable in a mobile application designed to help passengers retrieve lost items?

Respond

While they currently use non-digital methods, we see the value in a mobile app for better communication with clients, allowing direct contact for item retrieval.

5) *Question*: Are there any privacy or security concerns you would have regarding the use of a mobile application for reporting and retrieving lost items?

Respond

Privacy concerns include safeguarding sensitive information, like not exposing sensitive ID cards information on the platform (ID number) to prevent misuse of personal data.

6) *Question*: How difficult is the process of communicating to other colleagues to retrieve the lost items?

Respond

Communication among colleagues to retrieve lost items involves registering the complaint, exchanging details, and sharing information via WhatsApp among offices, enabling swift communication and resolution.

General Conclusion from the Buea taxi Union Interview

- They seemed interested and welcomed the idea of having a mobile application to facilitate communication process and transaction processes between the owners of found goods and the Union service or clerks
- Though using a traditional system, they already had a system of locating good lost in taxis with their own policies governing them.

- We though it possible to include their services as side functionality that could be integrated to our application separate from our own core functioning.

2.2.2. Interview with Travel Agencies

Attempts were made to interview the two popular travelling agencies in Buea: Masango and Diamond traveling agencies.

The workers of Masango Bus Station were not willing to cooperate with the project as the they could afford to spare time for the interview.

The clerk of diamond fortunately spared out some time off her schedule to enlighten us on the current functioning of their system as to how lost items were retrieved. According to her,

- People rarely loss items at the vicinity of station since it's just a place to get your ticket and travel and as such most people almost never leave anything behing
- When asked about missing or forgotten items in the busses, she pointed out that when a user leaves an item in the buss or can't find an item that was sent via the station, all they have to do is contact the closest station and the message will be broadcasted to all other stations till her item is found and that the method is usually so effective unless it was a case of theft.
- When asked about her thoughts of a mobile application for helping users find lost items, she stated that she didn't really think it important since not many people lose items at the station vicinity and that their current method of handling lost items in course of travelling works just fine since the number of complaints is usually low.

General Conclusion from the Traveling agencies Interview

- The travelling agencies where more passive a less receptive about the interviews
- Conclusions could be made on the fact that they were satisfied of their current means of operation and that the need of integrating our services into their current mode of operation won't be of much importance since the rate of object loss at travelling stations isn't too high as compared to the rate at which items are lost in taxis as per what was gotten from the clerk

2.2.3. Interview with the Police

We had the opportunity of interviewing **Mr. Tanyi Isaac, Adjutant-chef of gendarmerie, retired senior registrar military court of Buea** about how the police's involvement in the finding and retrieval of individual's lost items and if they are potential stakeholders or not. Here were his responses

- He mentioned that the police were indeed concerned in finding peoples lost items and that all people had to do was come file complaints

- Their finding procedure involved going to the specified areas in the complaints and performing manual searches which were time consuming and stressful

- Found items were announced over the radio which with time became less efficient due to a decreasing use of radios as communication means

- He said the processes could take very long and yielded very poor results majority of the times making it not very reliable and hence this duty became more and more neglected over the years

- He also mentioned that the police usually had funds assigned to them from the government for such searches but over the years due to decrease of insufficiency of such funds, the payment was usually demanded from the pockets of the individuals filling the complaints leading to an increase in the unreliability of the process and general rejection

- He appreciated the idea of developing such and application for handling and helping to facilitate the process of helping individuals' goods and its potential integration to police services

The information gotten made us realize the need for a more reliable system for the finding missing items for individuals with possible integration of police services for security or facilitation of the finding tasks. We then thought about interviewing random users next to get their feedback about these various integrations with the police and the taxi union.

Requirements Gathered from the interviews with related systems

Following the completion of our interviews, several noteworthy insights have emerged that present opportunities for optimizing our system and potentially surpassing the capabilities of related organizations. These insights serve as valuable inputs for enhancing the functionality, reliability, and effectiveness of our lost item retrieval system, positioning it to meet and exceed the needs and expectations of stakeholders while offering a competitive advantage over existing approaches. Some of them include

- Need for better means of communication between parties of the system (owners and finders)
- Easy means of reporting and being notified about found goods
- Efficiency of the system in how fast goods are found
- Low Cost or no cost demanded on individuals for finding their items
- Reliability in the validation of claims for found items
- secureness of user information and privacy
- Easy access to services and user friendliness
- Simple procedures to report and retrieve missing items

2.2.4. interview with Random Individuals

They are the most important stakeholders of our application and the core logic of our application is implemented for them. And as such, interviews had to be done on a number of these users to understand their needs and document this needs before carrying on with the other phases of the project. From these interviews we were able to get a lot of varying impressions of not only their needs but about their worries and some of those which strokes really important shall be listed below.

- *Awareness:*

An individual pointed out the need for there to be awareness of the application. They mentioned that few people knowing about the application might mean that a person might lose an item but not know about the application while the person who finds it might upload it to the app or the other way round where the person who loses the item uploads the application but the person who finds it doesn't know about the application. Such situations make the whole process slow and the application even useless to the users hence the need to awareness to ensure that everyone know about the application, thereby increasing the probability of the owner and finder of the items to being on the platform and locating lost items.

- *Money Incentive:*

An individual asked a question while being interviewed: "What will motivate me to go through the stress of going to an application an posting a found item". They mentioned that not everyone is good willed and that there will need to be a king of compensation reward given to people who find other peoples items such that when someone finds an item, even if they are not of goodwill, the presence of a reward will push them to report the missing item on the application

- *User Account Creation:*

When asked if the creation of accounts would be a nice feature to integrate, most individuals mentioned the need for user accounts to be able to receive item match updates and notifications as well as for privacy and security reasons. While some expressed their preference of making the application like an open forum and stated that they don't loss items on a daily basis so creation of accounts will be overkill

- *Saving of Important user Info:*

Some individuals mentioned that the system should keep valuable information of all users as well as the information of the objects found. For the users, info such as their identification details, their address, contact info and so on. While for the objects, info such as the content or descriptive properties should be kept

- *Roadside Camera Integration:*

A user mentioned the possible integration of roadside image camera to help in case where two users claimed possession of same lost item in same area at same time etc.

- *Security Concerns*

Users were asked about how they felt about integrating police services as part of the retrieval process since most of them brought about the issue of security in retrieving you found items from strangers.

When asked about how they felt about going to retrieve these items from the police? a select few where Okay with it. The majority expressed their complaints about integrating the police into our system for the following reasons

- Some stated their mistrust in the police about having possessions of their items. They feared they might be forced or extorted into having to pay some funds at the stations or some other type of negotiations with the police before retrieving their items.
- Some also refused this approach due to the increase in the number of procedures and paper work they might have to go through just to retrieve their items if it were in the hands of the police.
- Some complained about the police being intimidating and not user friendly and that depending on the item they would rather just leave it there than trying to go to the police.
- The point of mistrust in particular was very common as most claimed the police might extort, ask for bribe or even falsify and try to claim some items such as phones laptops etc.

General Conclusion from the Individual user interviews

The individual interviews of random individuals help in that it permits one to think from the customers or end-users point of views as to what they think will help them or the challenges they might phase when using your system as well as what they think might be potential solutions from their perspective to some of the problems they might phase that might affect their experience while using the application. The solutions brought out from brainstorming on some of the problems put forward from these interviews shall be seen below in the brainstorming chapter. From the user interviews we got requirements such as

- Making adverts or using other types of promotion techniques to make the application known and instill awareness to the masses about the application
- The need for the introduction of a reward system for proper functioning of the app
- The creation of user account
- Collection and storing of user information
- Implementation of road camera systems
- Having operational offices to ease the retrieval process
- The need for making the report and retrieval system as simplistic as possible

2.3. Online Survey

This technique of elicitation helped to analyze the general public and to make assessment as to how useful the system will be in practice and to understand the general trends and how to respond to these trends as far as our application is concerned.

Google forms was used to create a online survey of questions which was reviewed to get more insights as to the requirements and expectations of the user as well as the feasibility of the project and if to carry on with it or not. Screenshots shall be given for each question with the statics and then the insights gotten from these statistics

1)

How often do you find yourself misplacing or losing personal belongings?

29 responses

- Rarely
- Averagely
- Frequently
- Very frequently

55.2%

34.5%
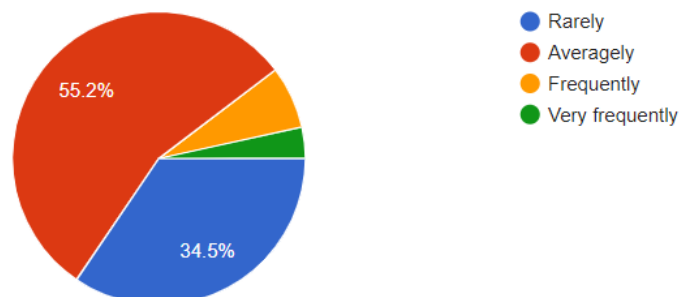
This tells us that the majority of users lose possessions or belonging in an average basis. Some rarely loose items while few loose them frequently and very frequently. This gives insights as to how indispensable or how needed the system can be by users

2)

How often do you find people's missing belongings?
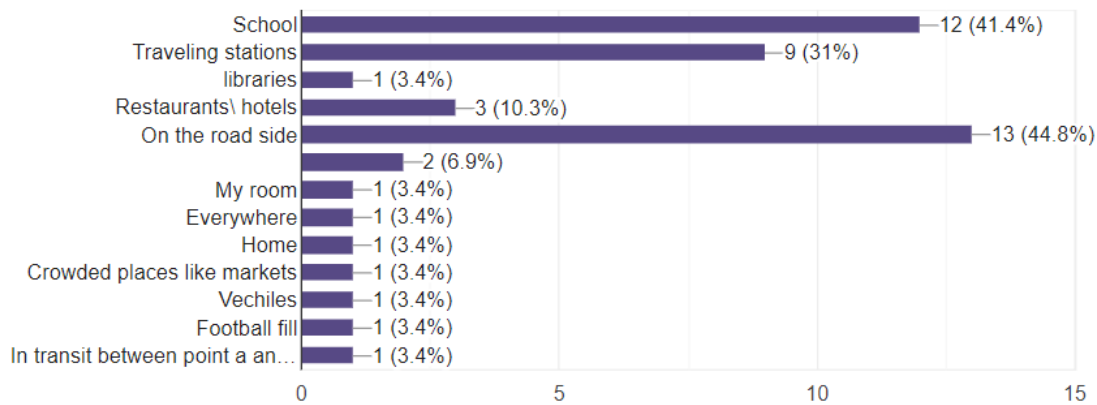
29 responses
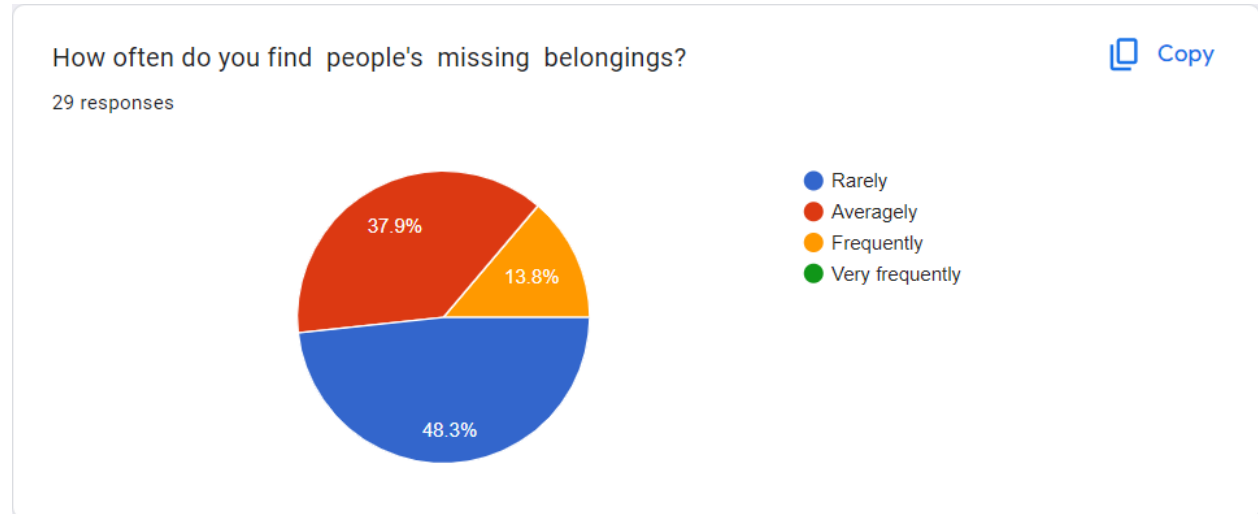
The second statistics collected shows a kind of balance between the frequency of lost and found items and this is favorable in the sense that it shows that most items lost can be found or are usually found by others

3)

## Where do you commonly misplace or lose your items

29 responses

The fourth chart gives us an understanding of where people most commonly loose items with the highest being school and the road side. This might give valuable understanding as the type of objects you system should be proficient in finding or matching and the priority too.
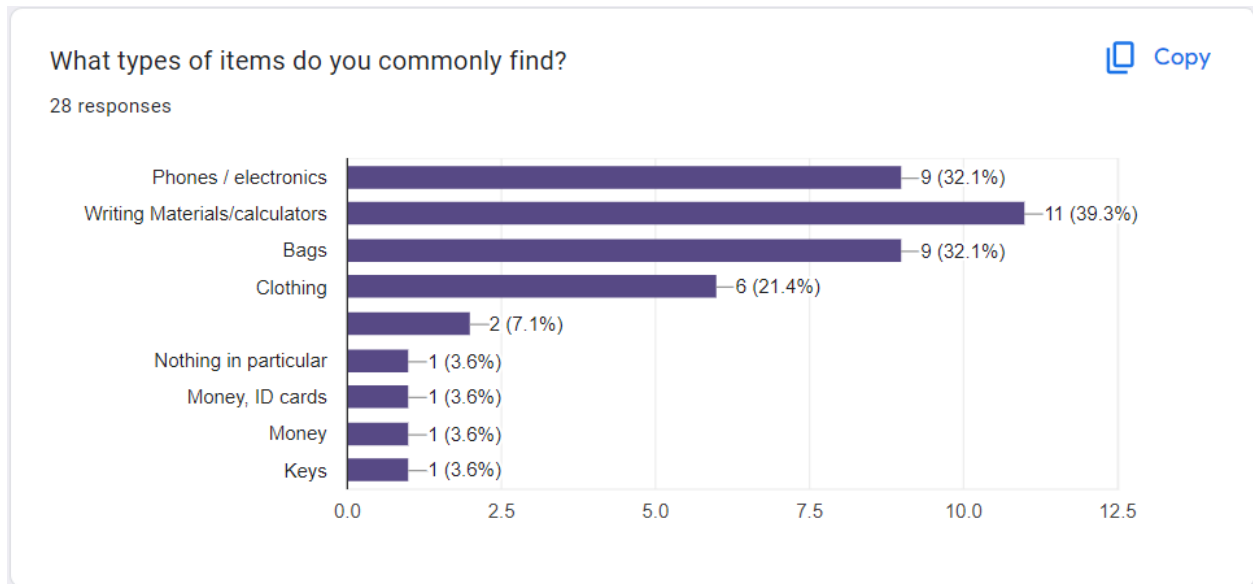
4)

What types of items do you commonly misplace ?

29 responses
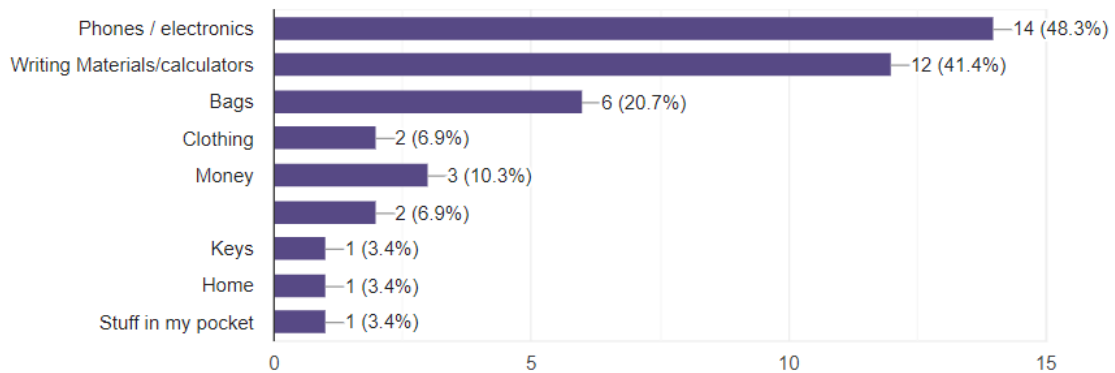
Same as in the previous case, this chart gives more insights as to what type of objects should be prioritized during the training phase of the system for example. And the 3 top items are phone/electronics , writing materials and bags (probably due to the vase population of buea being student to working age group)

5)

What types of items do you commonly find?

28 responses

Item	Count
Phones / electronics	9 (32.1%)
Writing Materials/calculators	11 (39.3%)
Bags	9 (32.1%)
Clothing	6 (21.4%)
	2 (7.1%)
Nothing in particular	1 (3.6%)
Money, ID cards	1 (3.6%)
Money	1 (3.6%)
Keys	1 (3.6%)

This chart again shows that most of the items lost can be found since it matches with that of the lost items

6)

How do you typically try to find a lost item ?

29 responses

announcing to friends and family (depending on when and where I lost the object). Posting the missing object on social media platforms to help the alert spread wider. Look for it myself by going back to the place I think I lost it.

Juste allow it in God hands

I don't try

Through WhatsApp statuses

Yes

I look for taxis that are similar to that which I boarded while taking note of the driver' looked to see if it matches with the one I boarded

expecting a call if there's a number on it if not, I try to look around

By going back to the place I think I lastly used it, and asking around

12

Pretty hard I don't easily give looking till I find adequate clues

Ask people around where i lost it

Call up the agency, post the items and request help on whatsapp

Retrace my steps

Go to the radio or drivers union

Unknowingly

Ask around

By asking other people that where with me

As seen above, the following responses give an understanding of the irregular, inconvenient and unconventional ways people use to find their missing properties hence the need for a simpler and more efficient way involving multiple parties for easy finding of lost items.

7)

How do you typically try to report a found item ?
29 responses

Not often

If it's something very important I reach out to any nearby police station and/or Radio station to report it

I announce in social groups and inbox people who could potentially have taken them, maybe by mistake

I don't report, just keep it visible so that the person who lost it can come and find it

Telling people about it

Getting to the owner on phone

Social media

I don't try I just find

Not. Specific

Ask the people around for the owner or give it to the police station.
Or better still don't just take it

8 don't report

Through WhatsApp statuses

Yes

I move then to the police station and or drivers' Union for help ,or ask from anonymous people

Depending on where I found it, if on a taxi I will report to their station

If the item has a name or contact, I can try contacting the person, if not, then it's my lucky day

I usually post on my WhatsApp account status and my group chats

The responses shown in this section show the different means by which people currently report found items. All the above mean can be seen to be very inaccurate and stressful need being for the implementation of a better system like the system in question for easy reporting of items.

8)

What features would you like to see in an app to help locate missing items?

24 responses

A tap to fill in info and address if someone comes across a missing item

- A place where users could register objects that can easily get missing
- If possible those objects get a code generated by the app pasted on them
- A place where users can report a missing object with: location, time and date and if available, the registration number pasted on it

Ring button, flashlight button, GPS tracking aswell

Phone number, fb name

No idea

Localisation and contacts

An agency where missing things can be found and keep they

Phone

An agency where missing things can be found and keep they

Phone
Like for example:
If I can't find my phone,I'll use another phone to ring my number

Chat option to link finder and seeker

Gps

An intuitive user interface, image recognition and matching, available offline, being able to upload and search images by description.

Location
Examples

A sort of community where people report items they've found and others can search for their missing stuff. Kinda like a lost but found box

Reword

Pictures written descriptions and the place where the item was found, easy access to the public

Text, camera, calls

ability to post and get notified wheb my item is found or posted

Live location between someone who has found it and me or a ping to the item

Free access to everyone

Communication features to help facilitate the finding and receiving of a lost item. That is, social communication updates on missing items.

A map, probably to locate certain points

For this section, individuals gave their opinions or propositions as to what could be features or functionalities to be implemented in our mobile application. These suggestions will later on be brainstormed upon, analyzed and prioritized accordingly

9)

Would you prefer the app to use image matching technology to identify lost items or to use other means?

Copy

29 responses
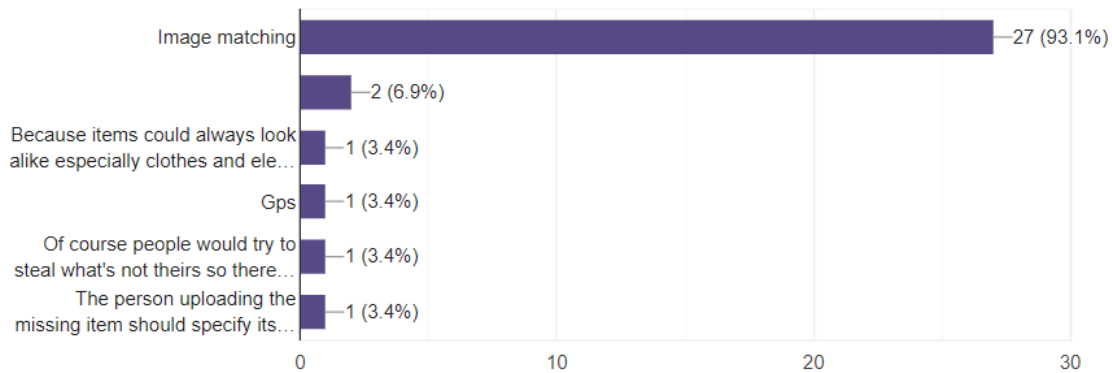
This shows that image matching was chosen or accepted by the users as the core logic behind the functioning of the system, backed up by other technologies like provided object descriptions

10)

Do you have any additional feedback or suggestions for improving the app's functionality or user experience?

16 responses

A map would help I think

Add security measures in case two parties have to meet

Privatize access through Iris and handprint recognition to use app

It' should function like an ameliorated version of localisation services

The app should be easily accessible

No, first time hearing about it

How are users going to retrieve their lost items if identified on this app?

Nope

No. Since I haven't actually used the app

The founder, content/ password, time frame, the identification of the beneficiary and contact, compensation (ie the person who found it and for the running of the system)

Incase i do get to identify my missing item on the app how do i get to have it back?

Should enable that another person doesn't take the lost item

Essy to use and very efficient.

Nothing for now.

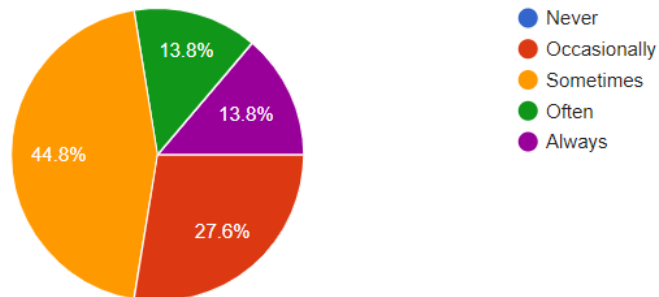Nothing for now but will share after looking deeper into it

No

The users opinion on how to optimize performance of the application was taken for brainstorming and analysis

11)

How likely are you to use a missing objects app if it were available?   [] Copy

29 responses

- Never
- Occasionally
- Sometimes
- Often
- Always

This chart gives an approximation of how much people find the idea of the application useful and serves as a sort of feasibility studies telling if to proceed or not. From the statistic see, it shows that it might be a valuable product to users and it is okay to proceed with the project.

12)

Is there anything else you would like to share about your experiences with losing or retrieving items?

18 responses

No

Never really lost anything

Last week I lost my laptop charger at FET hall 1. Because of many reports and assignments with approaching deadlines I bought a new charger the following day after having announced in many groups

It is after I bought the charger that I saw that someone found it and reported in a group
I think that was late because I spent money

I would just like to encourage y'all doing this project, coz it's gonna help somany people

Just I forget a lot so I end up leaving them somewhere else

None

I lose my bag yesterday so if this app is created i will really be happy

Except it's really important, I wouldn't mind losing it

Losing an important belonging and not being able to retrieve it is really a pin in the neck. Most people find items but don't know how to follow the right procedures to try to get it back to it's owner. By so doing, some might pick it up and keep, or displace the object making it hard to retrieve the item by mere searching. So an availability and awareness of this app to users will make things easier. In that, people are aware that there's an app for reporting missing objects and reporting the discovery of missing objects." Than hanging a missing ID on a pole on the road, just snap and upload to the system"

Nope

It's usually so frustrating to seek help from the police because some of the culprits seem to be their acquaintances, so it makes it difficult

I'd love to help others cuz I've been a victim of this.. I lost my phone twice and my Identity card once but I was able to recover the phone thanks to someone of good will

i rarely loose things since i dont move alot but its mostly a bad feeling for me

> Losing something just offsets my mood for hours on end

> At 28 years.. I have lost a lot of things i wish i could find but unfortunately i haven't.. With the coming of an app to hopeful improve my chances of finding future missing object, its a cool initiative and i can't wait

> I lost my ID card once and I had to move up and down for about 6-8 hours looking for it. It was a terrible experience

> No

Most individuals expressed their past frustrations having to deal with lost items and some expressed how important such a system will be in facilitating finding lost items, avoiding cost of buying new items, reducing the frustrations and challenges faced with the loss of important items and many others

General Conclusion and user Requirements from the online survey

The general survey provided insights and confirmation on the potential success of project. That is, if the system is actually needed by those we thought would be our end users.

It permitted us to easily get user contributions and their feelings and expectations of the project we were able to outline the following requirements or points from the survey

- Ease of use and good user experience
- Reward system for those who find items
- Text, camera, calls integration for easy communication between owners and finders
- Notification services
- Live location between someone who has found it and me or a ping to the item
- Free access and availability to all
- Communication features to help facilitate the finding and receiving of a lost item. That is, social communication updates on missing items.
- A map, probably to locate certain points
- A tap to fill in info and address if someone comes across a missing item
- A place where users could register objects that can easily get missing
- Issuing of codes to lost and found items to ease matching
- A place where users can report a missing object with: location, time and date and if available, the registration number pasted on it
- Phone number, Facebook names to help communication between parties
- Localization and contacts
- An agency where missing things can be found and keep, they
- Phone tracking services

- Chat option to link finder and seeker
- Gps integration
- An intuitive user interface, image recognition and matching, available offline, being able to upload and search images by description.
- Location services
- A sort of community where for reporting missing and found items
- Adding details about the Place of missing item, place found, monitoring device, account
- The need for the implementation of image matching system to the application
- The main types of items to prioritize when developing the system
- The need to make the system as a whole easy to use, convenient, reliable and available to all in order to facilitate their daily struggles in finding lost items

These requirements shall be filtered and prioritized in the analysis face to select those that are feasible and integrable in the functioning of the application .

2.4. Brainstorming

This was done by the whole team to think about the potential issues brought up by individuals in the other elicitation phases and the requirements needed to solve these issues in the system as well as bringing up other requirements necessary for the core functioning of the application. Some of the problems brainstormed on are seen below followed by how the were addressed after brainstorming.

Problem : Need for a way to make users more engaged in finding and reporting lost items
Proposed solution:

- The need to implement a payment system where the owner of the item found chips in a reward depending on the lost item which is split between the finder and the system

Problem: Adding money might increase theft in the sense that people might steal other's items or belongings such as Id cards and host them on the app to get rewarded

Proposed solution:

- The need to implement a kind of KYC authentication to make sure non integral or honest members of the society can't have access to accounts on the application leading to possible thefts
- The storing of user information such as Identification numbers, phone numbers, location addresses, such that if a user identifies his stolen item, they can track the account that reported that item and have them interrogated as to how they obtained the item

Problem: Insecurity during exchange retrieval of items by the owners in the sense that users might feel insecure about meeting strangers to collect their found items

Proposed solution:

- In addition to the two methods above of guaranteeing save retrieving, our system should implement the proposition of safe exchange points depending on the parties positions to ensure a easy trackable and safe meeting point for the two parties involved.

Problem: the reluctance of individuals towards police integration

Proposed solutions:

- The need for establishment of our own offices for depositing and collection of found items as well as safe returning to the owners in a future stage of the project
- In the starting phase of the project, one on one meetings can be done between finder and owner with the implementation of the protocols mentioned above. That is KYC and safe location proposing as well as user monitoring using account details
- The need for government certification or legalization to run as an independent service in charge of people goods and to possibly get grants to pay workers and build offices in a later stage of the project giving the system more autonomy and integrity fostering trust between the users and the system

Problem: Wastage of time by the system for finding urgent user Items

Like the individual who complained about a missing charger, a user might have lost a document that is needed urgently and wants the system to help him locate it as fast as possible.

Proposed solution:

- The need for the system to be able to send alerts of the missing item to all users with higher rewards for anyone who finds it or found it withing a particular time frame

General Conclusion and requirements from Brainstorming

- Implementation of payment system to increase participation
- Implementation of KYC for authentication and security as well as integrity
- Implementation of safe meeting spot propositions by the application for retrieving items
- Storing of Important user information to facilitated tracking in case of accidents or theft
- Creation of offices for save storage and retrieval of found items increasing integrity and security
- Government legalization and certification for integrity, grants and security
- Need for customizable reports in cases of need for urgent finding of items

3.CONCLUSION

This requirements gathering phase helps us to come to conclusions as to how needed the application in question is by the end-users, To understand their opinions and recommendations with respect to the challenges faced with losing items and how the application can potentially help them solve these problems. It also helped outline their worries or concerns about insecurities in the application as well as help us analyze the requirements needed to parry them. And most importantly to outline their needs and requirements of the application need to make it satisfactory and adaptable to their demands and to solve the target challenges faced in reporting and finding lost items.

The requirements brought forth or outlined in this step shall be analyzed in the next step, classified, prioritized and researched on in detail to know how to approach each of them, the tools to be used to make possible correct designs of appropriate solutions to solve the said challenges and satisfy user need and expectations