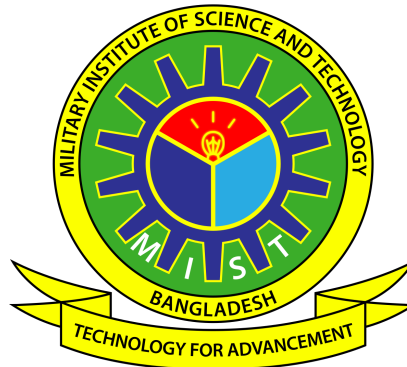


Military Institute of Science and Technology



Department of Computer Science and Engineering

CSE402: Information System Design and Development

Information Gathering Report

Digital platform for disaster response

Group: Echo B

| | |
|--------------------------------------|------------------|
| Chowdhury Farjana Tur Santona | 202014010 |
| MD Rifat Islam | 202014034 |
| MD Tausiful Haque | 202014036 |
| Muhammad Samee Sevas | 202014038 |
| Shejuti Binte Feroz | 202014050 |
| Zakia Tamanna | 202014061 |

Contents

| | |
|---|-----------|
| Introduction..... | 1 |
| Methods of Information Gathering..... | 2 |
| Sources of Information Gathering..... | 4 |
| Information Needed..... | 5 |
| 1. User Information..... | 5 |
| 2. Technical Information..... | 5 |
| Information Gathered..... | 6 |
| 1. Information Gathered Through Questionnaires (M1)..... | 6 |
| 2. Information Gathered Through Interview (M2)..... | 8 |
| 3. Information Gathered Through Literature Review (M3)..... | 14 |
| Existing Systems..... | 18 |
| 1. Feeling Blessed- Donation app..... | 18 |
| 2. Impact Guru..... | 19 |
| 3. PouchFunding: Online donation..... | 20 |
| 4. Feature Table:..... | 21 |
| Conclusion..... | 22 |
| References:..... | 23 |
| Appendix A..... | 24 |
| 1. Information Gathering Table..... | 24 |
| 2.1. Information Gathering Matrix 1..... | 28 |
| 2.1. Information Gathering Matrix 2..... | 29 |
| Appendix B..... | 30 |
| 1. Survey Question..... | 30 |

Chapter 1

Introduction

In an increasingly interconnected world, digital platforms have emerged as powerful tools for disaster response and management. The digital platform for disaster response is a single platform to make use of the vast amount of data available from various sources to improve situational awareness, coordinate relief efforts, and provide timely assistance to affected communities. This platform will create a comprehensive and real-time picture of the disaster by gathering information from various channels, allowing responders to make informed decisions and allocate resources effectively. For the successful operation of this digital platform devoted to disaster response, it becomes essential to comprehend the sources of information gathering in this situation. Using this digital platform will greatly improve disaster response capabilities, which will ultimately save lives.

Chapter 2

Methods of Information Gathering

Three methods of information gathering have been used for our project.

M1 Surveys and Questionnaires

M2 Interviews

M3 Literature Review

1. Surveys and Questionnaires (M1):

Surveys and questionnaires are effective methods for collecting quantitative and qualitative data from a large number of people. They allow for the collection of structured information and the generation of standardized responses that can be analyzed systematically. Surveys can be distributed online or through the digital platform itself, reaching a large number of people, including those who have been affected, first responders, and volunteers. Data collected through surveys and questionnaires can provide insights into people's experiences, needs, and opinions, allowing gaps to be identified and disaster response efforts to be improved.

2. Interviews (M2):

Interviews are an effective way to gather in-depth and nuanced information directly from individuals involved in disaster response, such as emergency management officials, relief workers, or community leaders. Conducting interviews allows for a more personal and interactive approach, allowing interviewees to share their experiences, perspectives, and expertise. Interviews can provide valuable context, revealing insights that surveys alone may not capture. They provide an opportunity to investigate complex issues, clarify responses, and collect qualitative data, all of which can be useful in understanding the challenges and successes of previous disaster response efforts.

3. Literature Review (M3):

A literature review is the systematic examination of published materials relevant to disaster response, such as academic papers, reports, and case studies. This tool assists in identifying existing knowledge, best practices, and lessons learned from previous disasters. By reviewing scientific research and expert analysis, the platform can gain a solid foundation and understanding of the field. The review aids in identifying efficient strategies by looking at previous successes and failures. A well-executed literature review can be a valuable resource for policymakers, practitioners, and anyone looking to improve disaster response initiatives.

Chapter 3

Sources of Information Gathering

The four sources listed below were reliable and validated enough to collect necessary and valuable information for our system.

S1 Donors.

S2 Interviewed Person from Non-Governmental Organization (Bangladesh Red Crescent Society): Mahmudul Hasan.

S3 Interviewed Person: Md. Nasir Uddin.

S4 Research papers.

Chapter 4

Information Needed

1. User Information

- I1 Systems are used to respond to all types of disasters.
- I2 Accessibility and usability for disaster response teams and affected communities.
- I3 Common barriers to accessing disaster response services.
- I4 Consideration of regulatory and legal structures that influence disaster response.
- I5 Consideration of frequently occurring disasters.

2. Technical Information

- I6 Analysis of potential applications in disaster response.
- I7 Design a secure and reliable identification process for disaster victims, including data collection and storage.
- I8 Implementation of a procedure for sharing victim identification data between different response teams and organizations.
- I9 Development of privacy and security protocols to protect victim identification data.

Chapter 5

Information Gathered

1. Information Gathered Through Questionnaires (M1)

Sources of information: People who want to donate to the affected people, disaster response organizations, and volunteers.

Information needed = *In*.

The survey questionnaire can be found attached in *Appendix B*.

Table 5.1: Information Gathered Through Questionnaires

| <i>In</i> | Question | Answer | Outcome |
|--|---|--|--|
| Systems are used to respond to various types of disasters. (I1) | Have you ever used a system or technology to respond to a natural disaster? | <ul style="list-style-type: none">● 96.7% responded No● 3.3% responded Yes | Most of the users have yet to have direct experience with such systems. |
| | Do you think that technology can improve disaster response efforts? | <ul style="list-style-type: none">● 71.3% responded No.● 28.7% responded Yes. | |
| Accessibility and usability for disaster response teams and affected communities. (I2) | Do you think your current systems are easy for disaster response teams? | <ul style="list-style-type: none">● 96.5% responded No.● 3.5% responded Yes. | The majority of users believe no method will streamline the contribution process and assist teams that respond to disasters. |

| | | | |
|---|--|---|---|
| Common barriers to accessing disaster response services (I3) | Do you agree that people experience barriers when trying to access disaster response services? | <ul style="list-style-type: none"> • 50.1% strongly agreed • 28.7% agreed • 21.2% were neutral. | A lot of individuals wish to donate to the victims. But they are unable to locate the appropriate organization, and security concerns also exist. |
| | Do you think that technology can help to overcome some of the common barriers to accessing disaster response services? | <ul style="list-style-type: none"> • 66.7% responded Yes. • 20% responded Maybe. • 13.3% responded No. | |
| Consideration of regulatory and legal structures that influence disaster response. (I4) | Are you aware of any regulatory or legal structures that influence the use of technology in disaster response? | <ul style="list-style-type: none"> • 92% responded No. • 8% responded Yes. | |
| | Do you think that it is important to consider ethical and legal issues when using technology in disaster response efforts? | <ul style="list-style-type: none"> • 100% responded Yes. | Ethical and legal considerations should be taken into account when implementing technology for disaster response efforts. |
| Consideration of frequently occurring disasters for the digital disaster response platform (I5) | Do you think that it is necessary to combine the donation processes for various types of disasters on one platform? | <ul style="list-style-type: none"> • 95% responded Yes | Users need such a platform that would provide the benefits to donate for various disasters in a platform |

2. Information Gathered Through Interview (M2)

Source of Information: Interviewed Person: Mahmudul Hasan (S2)

To collect information about how the response team contacts donors and collects relief items, how they conduct their legal procedures for disaster response teams, and how they store victim data in a database. We conducted an interview with an NGO worker who was in charge of the recent flood at the Bangladesh Red Crescent Society. We interrogated him about the system they use for receiving information from victims. We also took feedback about our digital platform from him.

* Information needed = I_n

Table 5.2: Information Gathered Through Interview (Person 1)

| I_n | Questions | Answers | Outcome |
|---|---|--|----------------|
| Accessibility and usability for disaster response teams and affected communities. (I2) | Question 1: What type of system do you use for disaster response? | Answer to Question 1: We send different response teams to the affected area after getting early information about disasters through satellites. | |
| | Question 2: Do you think the existing system is effective for disaster response? | Answer to Question 2: No, it is not easily accessible for the disaster response team. | |
| | Question 3: Do you think a digital disaster response platform would create an effective environment? | Answer to Question 3: Yes, it would be helpful for the digital response team. | |

| | | | |
|---|--|---|--|
| Consideration of regulatory and legal structures that influence disaster response. (I4) | <p>Question 1:</p> <p>How do you complete the legal procedures for disaster response teams?</p> <p>Question 2:</p> <p>Do you think that the existing procedure should be more transparent?</p> | <p>Answer to Question 1:</p> <p>The legal procedures are collected manually from the disaster response team, then it is stored in our database.</p> <p>Answer to Question 2:</p> <p>Yes, definitely. Sometimes the documents are error-prone and they are corrected manually.</p> | A digital platform is needed for organizations that will gather all the legal documents into a framework. |
| Consideration of frequently occurring disasters for the digital disaster response platform(I5) | <p>Question 1:</p> <p>Do you have any platform that combines all the disaster response?</p> | <p>Answer to Question 1:</p> <p>No, we don't have that.</p> | Users need a platform that can be used for various disaster responses. |
| Design a secure and reliable identification process for disaster victims, including data collection and storage. (I7) | <p>Question 1:</p> <p>How do you collect victim information?</p> <p>Question 2:</p> <p>Do you think the process is reliable?</p> | <p>Answer to Question 1:</p> <p>We collect victims' information from volunteers from different campaigns.</p> <p>Answer to Question 2:</p> <p>Sometimes we lose victims' data. though we have backup options.</p> | A central database system is needed to store victims' information, and the data collection process also needs to be authenticated. |

| | | | |
|--|---|--|--|
| | <p>Question 3:</p> <p>Do you feel there is a necessity for a central database system to store victims' information?</p> | <p>Answer to Question 3:</p> <p>Yes, it will be very helpful for us.</p> | |
|--|---|--|--|

Source of information: Interviewed person: Md. Nasir Uddin (S3)

To inquire about the legal and procedural requirements for making donations. To assess Md. Nasir Uddin's real-life engagement with the digital disaster platform. He donated recently for the flood that happened in Sunamganj, Sylhet, on June 28, 2022. We discussed our digital disaster platform with him and asked for feedback on how we could make it more user-friendly by adding more features. He also shared his experience of donating relief material during the flood and told us about the technical problems he faced.

* Information needed = *In*

Table 5.3: Information Gathered Through Interview (Person 2)

| <i>In</i> | Questions | Answers | Outcome |
|---|---|--|--|
| Systems are used to respond to various types of disasters. (I1) | Question 1: Have you used any digital disaster response platform for making donations? | Answer to Question 1: No, I haven't used any digital platform for making donations. I know a person who works for disaster supplier management in the Red Crescent. I contacted him and transferred the money through online banking. | Donors need a reliable, humanless platform to provide donations easily and more effectively. |
| | Question 2: Have you faced any problems regarding donations? | Answer to Question 2: Yes. First of all, the process was manual and tiring. I have to call several people to make sure whether the donation has been reached or not. Secondly, I wanted to donate to other areas that were affected indirectly but couldn't find any reliable people. | |

| | | | |
|---|---|--|--|
| | <p>Question 3: Do you think a reliable digital platform would make the donation procedure easier?</p> | <p>Answer to Question 3: Yes, I think so. It would make the transaction process easier and reduce manual labor.</p> | |
| Common barriers to accessing disaster response services (I3) | <p>Question 1: Have you faced any problems reaching disaster response teams?</p> <p>Question 2: Which types of problems have you faced?</p> <p>Question 3: Do you agree that a platform that gathers different nearest response teams would solve this problem?</p> | <p>Answer to Question 1: Yes, I have faced problems regarding this issue.</p> <p>Answer to Question 2: I couldn't reach them, as the network was down, continuing for hours. I had to wait and continuously check for the connection. Moreover, I couldn't reach another disaster response team as I didn't know any reliable people for this purpose.</p> <p>Answer to Question 3: Definitely! It would have been great if I could find and reach all the response teams on one platform.</p> | Disaster response services for donors should be collective and authenticated. |
| Consideration of regulatory and legal structures that influence disaster response. (I4) | <p>Question 1: Have you ever faced fraud?</p> | <p>Answer to Question 1: No, but my colleague once faced fraud. The disaster response team had no legal documentation, but they were about to collect a large amount of money from him.</p> | Legal frameworks for a disaster response team are a must and should be gathered on a platform. |

| | | | |
|---|--|--|---|
| | <p>Question 2: Do you feel the necessity of a digital platform to store all the legal documents about the response teams?</p> | <p>Answer to Question 2: Yes! It will be a great initiative.</p> | |
| <p>Consideration of frequently occurring disasters for the digital disaster response platform(I5)</p> | <p>Question 1: Do you donate on one platform for various types of disaster response?</p> <p>Question 2: Do you think that it would be helpful?</p> | <p>Answer to Question 1: No, I am not aware of such a system!</p> <p>Answer to Question 2: Yes, of course!</p> | <p>Donors need a platform that will enable them to donate on one platform for various disaster responses.</p> |

3. Information Gathered Through Literature Review (M3)

Source of Information: Research Papers (S4)

Table 5.4: Review of "Building Donor Loyalty: The Antecedents and Role of Commitment in the Context of Charity Giving"

| Name | Building Donor Loyalty: The Antecedents and Role of Commitment in the Context of Charity Giving |
|---------------------------|--|
| Source | Sargeant, A., & Woodliffe, L. (2018). Building donor loyalty: the antecedents and role of commitment in the context of charity giving. <i>Journal of Nonprofit & Public Sector Marketing</i> , 18(2), 47-68. |
| Outcome | The study in the paper found that commitment, trust, satisfaction, and personal identification with the cause were important factors in promoting donor loyalty and repeat donations in the context of charity giving. Potential applications in disaster response sates here: Real-time communication and coordination platforms for emergency responders and volunteers. Mobile applications for reporting and tracking incidents, collecting data, and disseminating critical information to affected communities. Data analytics and predictive modeling for early warning systems, resource optimization, and decision support. |
| Information Needed | [I6] Analysis of potential applications in disaster response. |

Table 5.5: Review of "A Volunteer Management System for a Large Nonprofit Organization"

| | |
|---------------------------|--|
| Name | A Volunteer Management System for a Large Nonprofit Organization |
| Source | A. Brown, C. Farnsworth, C. Webster, and J. Harney, "Design and Implementation of a Volunteer Management System for a Large Nonprofit Organization," in IEEE Transactions on Software Engineering, vol. 46, no. 6, pp. 738-756, 1 June 2020. |
| Outcome | The paper emphasizes the importance of a thorough requirements-gathering process and stakeholder engagement in the design and development of information systems. Apache HTTP Server is used here, which is an open-source, reliable, and flexible web server that can be installed on different operating systems, while AWS is a cloud computing platform that offers a wide range of hosting services, including scalability and security features. The paper outlines a procedure for sharing victim identification data between response teams and organizations involved in disaster response. The steps include identifying data to be shared, identifying organizations, establishing agreements for data sharing, implementing technical solutions for secure data sharing, and training personnel on the data sharing process. |
| Information Needed | <p>[I7] Design a secure and reliable identification process for disaster victims, including data collection and storage.</p> <p>[I8] Implementation of a procedure for sharing victim identification data between different.</p> |

Table 5.6: Review of "Exploring factors affecting online charitable donation behavior: A trusted perspective"

| | |
|---------------------------|---|
| Name | Exploring factors affecting online charitable donation behavior: A trusted perspective |
| Source | Chen, Y., & Chen, H. (2017). Exploring factors affecting online charitable donation behavior: A trusted perspective. <i>International Journal of Human-Computer Studies</i> , 69(12), 838-849. |
| Outcome | The paper suggests that trust is a critical factor that affects online charitable donation behavior. Trust can be built by improving the perceived security and privacy of the donation platform, providing transparent and accurate information about the donation process and recipient, and enhancing the perceived credibility and reputation of the charitable organization. Security measures to protect user data and prevent unauthorized access to the system include performing a risk assessment, developing and implementing a comprehensive security policy, using strong authentication methods, and encrypting sensitive data. |
| Information Needed | [I9] Development of privacy and security protocols to protect victim identification data. |

Chapter 6

Outcome Summaries

O1. The majority of respondents said they haven't employed a system or technology to react to a natural disaster, yet many also think it can help with disaster response.

O2. Most consumers do not believe that disaster response teams can easily use the current technology.

O3. Although the majority of respondents believe that technology can help remove these barriers, many people encounter obstacles when attempting to access disaster response services.

O4. Respondents have encountered a variety of challenges when attempting to contact disaster relief teams or make donations, including tedious and taxing processes, network difficulties, and a lack of trustworthy contacts.

O5. Many believe that a reliable digital platform could make the donation and response procedures easier and that a platform that gathers different response teams would solve the problem of reaching the right people.

O6. In order to guarantee the dependability and transparency of the disaster response process, regulatory frameworks, and central database systems are also required.

O7. The interviewee uses a system of sending different response teams to affected areas after getting early information through satellite. However, they do not think that the existing system is effective or easily accessible for the response teams.

O8. A digital disaster response platform would be helpful for the response team, as well as a platform to gather all the legal documents and a central database system to store victims' information.

O9. A more trustworthy and authorized method of gathering victim data is required.

Chapter 7

Existing Systems

Our proposed healthcare system has several counterparts in the market, each with its own set of advantages and disadvantages. In this analysis, we will review and compare these existing systems to our proposed system, providing a detailed market analysis that highlights the strengths and weaknesses of each approach. By examining these alternatives, we aim to demonstrate the unique benefits of our healthcare system.

1. Feeling Blessed- Donation app

Feeling Blessed is a mobile application designed to facilitate charitable donations and support various non-profit organizations. The app allows users to make donations to a range of charitable causes, such as education, healthcare, and disaster relief, among others. It aims to make charitable giving more accessible and efficient by providing a simple and secure platform for users to donate to their preferred causes. [1]

Pros:

1. Convenience: The app provides a quick and easy way for users to donate to their favorite causes, without the need for complex donation processes.
2. Variety of Causes: The app offers a wide range of charitable causes for users to support, which allows users to support causes that are most important to them.
3. Tracking and Reporting: The app allows users to track their donations and receive updates on the impact of their contributions, which enhances transparency and accountability.

Cons:

1. Lack of Personal Touch: The app does not provide users with the opportunity to interact directly with the non-profit organization or its beneficiaries, which can reduce the feeling of personal connection to the cause.
2. Reliance on Trust: As with any charitable giving platform, users must trust that their donations will go towards the intended cause and not be misused by the organization.
3. Area: This app is mostly used in Pakistan. So, local funding may not be available.

2. Impact Guru

Impact Guru is a crowdfunding platform that allows users to raise funds for various social and personal causes. The app enables individuals, non-profit organizations, and social enterprises to create fundraising campaigns, promote them, and collect donations from people worldwide. [2]

Pros:

1. Easy to use: The app has a user-friendly interface that makes it easy for individuals and organizations to create campaigns and collect donations.
2. Wide reach: Impact Guru has a broad audience reach, allowing fundraisers to reach a global audience and maximize their fundraising potential.
3. Multiple fundraising models: The app offers different fundraising models, including rewards-based crowdfunding, donation-based crowdfunding, and peer-to-peer fundraising, to cater to different campaign needs.
4. Multiple fundraising models: The app offers different fundraising models, including rewards-based crowdfunding, donation-based crowdfunding, and peer-to-peer fundraising, to cater to different campaign needs.
5. Marketing and promotion tools: The app includes various marketing and promotion tools, such as social sharing and email campaigns, to help fundraisers reach more people and generate more support.

Cons:

1. Fees: The app charges fees for its services, including a platform fee and payment processing fees, which can reduce the amount of money fundraisers receive.
2. Limited flexibility: The app's crowdfunding models and features may not be suitable for all types of campaigns, limiting the flexibility of the platform.
3. Trust issues: Fundraisers must trust that the donations they receive will be used for their intended purpose and not misused by the organization.
4. Limited control over campaigns: The app provides limited control over the campaign process, as the organization must approve campaigns before they can go live.
5. Area: This app is mostly used in India. So, local funding may not be available.

3. PouchFunding: Online donation

PouchFunding is an online donation platform that allows individuals and organizations to create fundraising campaigns and collect donations from people worldwide. The platform offers various features to make the fundraising process simple and accessible for all. [3]

Pros:

1. Dedicated support: PouchFunding provides dedicated support to fundraisers, including tips, best practices, and legal and tax advice, to help them create effective campaigns and achieve their fundraising goals.
2. Lower fees: PouchFunding charges lower fees compared to other online donation platforms, allowing fundraisers to keep more of the money they raise.

Cons:

1. Limited features: PouchFunding offers limited features compared to other online donation platforms, which may not be suitable for more complex campaigns.
2. Trust issues: Fundraisers must trust that the donations they receive will be used for their intended purpose and not be misused by the organization.

3. Limited fundraising models: PouchFunding offers limited fundraising models, which may not be suitable for all types of campaigns, limiting the flexibility of the platform.

Feature Table:

| Features | Feeling Blessed Donation App | Impact Guru | Pouch Funding | Digital Platform for Disaster Response |
|----------------------------|------------------------------|-------------|---------------|--|
| Dedicated Support | ✓ | ✓ | ✓ | ✓ |
| Personal Touch | × | ✓ | × | ✓ |
| Trust Issue | × | × | × | ✓ |
| Tracking & Reporting | ✓ | ✓ | ✓ | ✓ |
| Wide Reach (Country) | ✓ | ✓ | × | ✓ |
| Multiple fundraising Model | × | ✓ | × | × |

Chapter 8

Conclusion

Based on the information gathered through the questionnaires and interviews, it is clear that there is a need for a more effective and efficient system for disaster response efforts. The majority of respondents said they had never donated using a digital platform for disaster relief and struggled with laborious and manual procedures. A trustworthy, automated platform is required to streamline and improve the contribution process.

In a similar vein, respondents have also encountered challenges getting in touch with disaster response teams, such as network connectivity concerns and challenges locating trustworthy contacts. This issue could be resolved and the procedure made more approachable for the disaster response team by creating a platform that brings together various local response teams.

In conclusion, the information gathered highlights the need for a more effective and efficient system for disaster response efforts, including the use of digital platforms for donations and central database systems for storing victims' information and disaster response team legal documentation. Legal and ethical considerations should also be taken into account when implementing technology for disaster response efforts.

Chapter 9

References:

- [1] <https://play.google.com/store/apps/details?id=com.nextgeni&hl=en&gl=US>
- [2] <https://play.google.com/store/apps/details?id=com.impactguru.donate&hl=en&gl=US>
- [3] <https://play.google.com/store/apps/details?id=com.pouchfunding&hl=en&gl=US>
- [4] Sargeant, A., & Woodliffe, L. (2018). Building donor loyalty: the antecedents and role of commitment in the context of charity giving. *Journal of Nonprofit & Public Sector Marketing*, 18(2), 47-68.
- [5] A. Brown, C. Farnsworth, C. Webster, and J. Harney, "Design and Implementation of a Volunteer Management System for a Large Nonprofit Organization," in *IEEE Transactions on Software Engineering*, vol. 46, no. 6, pp. 738-756, 1 June 2020.
- [6] Chen, Y., & Chen, H. (2017). Exploring factors affecting online charitable donation behavior: A trusted perspective. *International Journal of Human-Computer Studies*, 69(12), 838-849.

Appendix A

1. Information Gathering Table

Table A.1: Information Gathering Table

| Information Needed | Source | Method | Outcome |
|---|--|--|--|
| I1: Systems used to respond to various types of disasters | S1: Donors, S2: Interviewed Person 1. S3: Interviewed Person 2 | M1: Interviews M2: Surveys and Questionnaires | O1: The majority of respondents said they haven't employed a system or technology to react to a natural disaster, yet many also think it can help with disaster response, O2: Most consumers do not believe that disaster response teams can easily use the current technology, O3: Although the majority of respondents believe that technology can help remove these barriers, many people encounter obstacles when attempting to access disaster response services. |

| | | | |
|--|---|--|---|
| I2: Accessibility and usability for disaster response teams and affected communities | S1: Donors, S2: Interviewed Person 1, S3: Interviewed Person 2. | M1: Interviews M2: Surveys and Questionnaires | O2. Most consumers do not believe that disaster response teams can easily use the current technology, O4: Respondents have encountered a variety of challenges when attempting to contact disaster relief teams or make donations, including tedious and taxing processes, network difficulties, and a lack of trustworthy contacts, O5: Many believe that a reliable digital platform could make the donation and response procedures easier and that a platform that gathers different response teams would solve the problem of reaching the right people. |
|--|---|--|---|

| | | | |
|---|---|--|--|
| I3: Common barriers to accessing disaster response services | S1: Donors, S2: Interviewed Person 1, S3: Interviewed Person 2. | M1: Interviews M2: Surveys and Questionnaires | O1: The majority of respondents said they haven't employed a system or technology to react to a natural disaster, yet many also think it can help with disaster response, O2: Most consumers do not believe that disaster response teams can easily use the current technology, O3: Although the majority of respondents believe that technology can help remove these barriers, many people encounter obstacles when attempting to access disaster response services, O4: Respondents have encountered a variety of challenges when attempting to contact disaster relief teams or make donations, including tedious and taxing processes, network difficulties, and a lack of trustworthy contacts. |
| I4: Consideration of regulatory and legal structures that influence disaster response | S1: Donors, S2: Interviewed Person 1, S3: Interviewed Person 2. | M1: Interviews M2: Surveys and Questionnaires | O6: In order to guarantee the dependability and transparency of the disaster response process, regulatory frameworks, and central database systems are also required. |

| | | | |
|---|---|--|---|
| I5: Consideration of frequently occurring disasters for the digital disaster response platform | S1: Donors, S2: Interviewed Person 1, S3: Interviewed Person 2. | M1: Interviews M2: Surveys and Questionnaires | O7: The interviewee uses a system of sending different response teams to affected areas after getting early information through satellite. However, they do not think that the existing system is effective or easily accessible for the response teams.. |
| I6: Design of a secure and reliable identification process for disaster victims, including data collection and storage. | S4: Research papers | M3: Literature Review | O8: A digital disaster response platform would be helpful for the response team, as well as a platform to gather all the legal documents and a central database system to store victims' information. |
| I7: Implementation of a procedure for sharing victim identification data between different response teams and organizations | S4: Research papers | M3: Literature Review | O8: A digital disaster response platform would be helpful for the response team, as well as a platform to gather all the legal documents and a central database system to store victims' information. |
| I8: Development of privacy and security protocols to protect victim identification data | S4: Research papers | M3: Literature Review | O9: A more trustworthy and authorized method of gathering victim data is required. |

2.1. Information Gathering Matrix 1

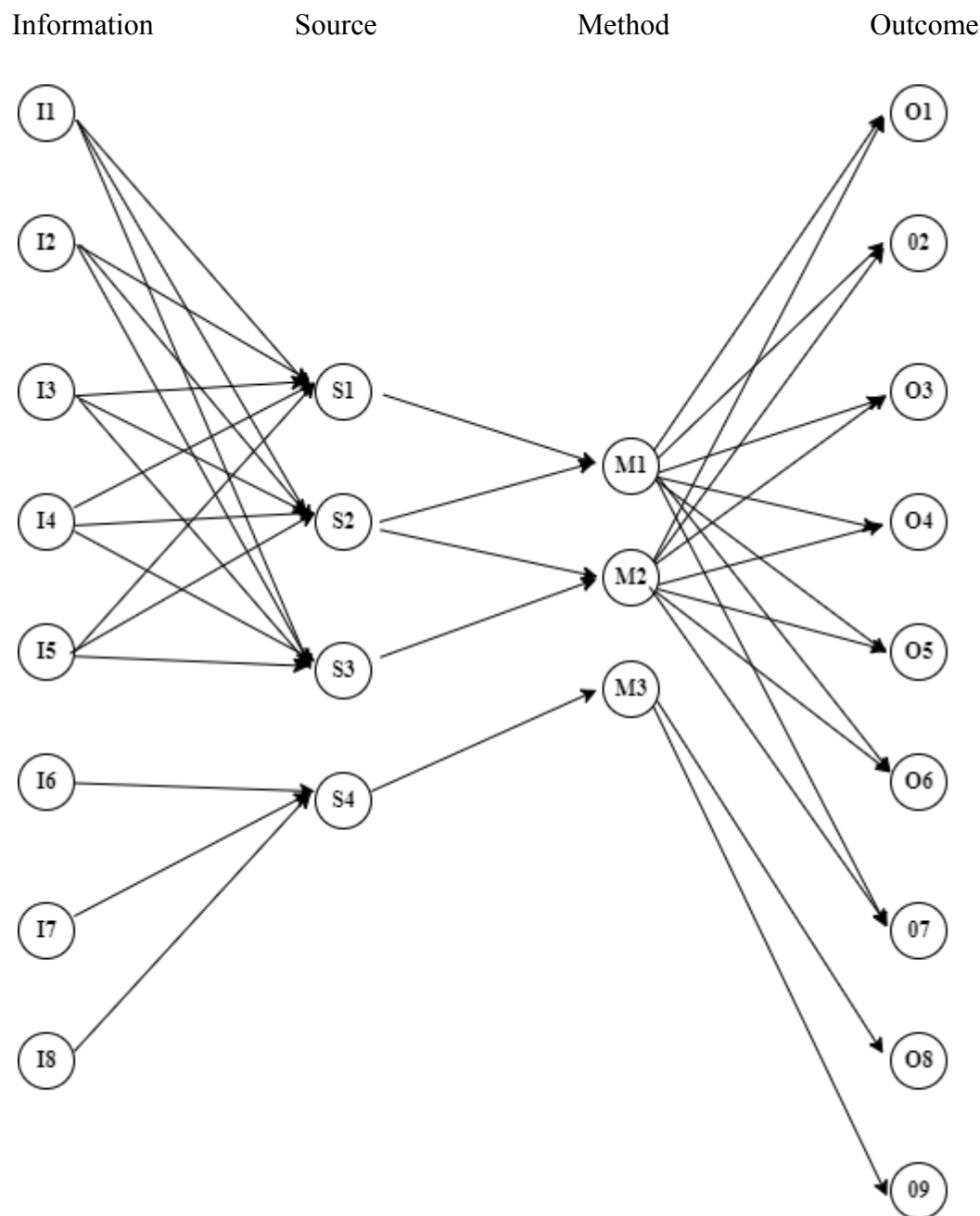


Figure-1: Information Gathering Matrix

2.1. Information Gathering Matrix 2

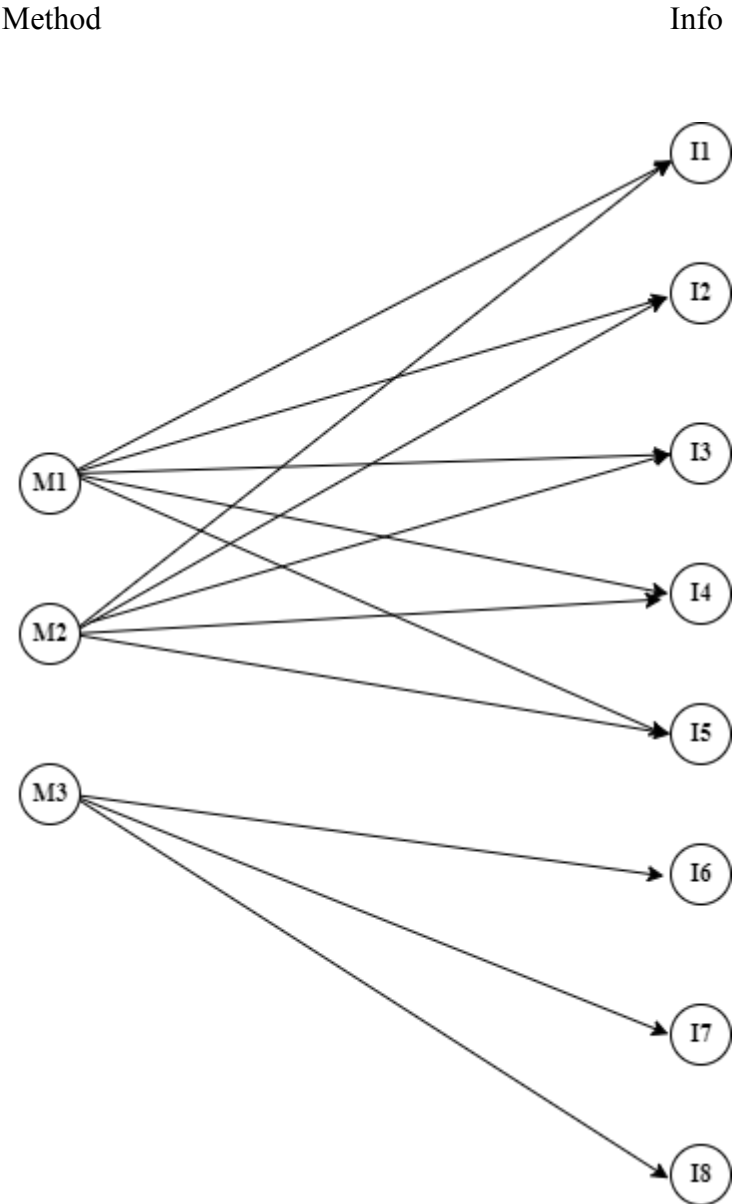


Figure-2: Information Gathering Matrix 2

Appendix B

1. Survey Question

Q1. What types of natural disasters have you personally experienced?

- a. Flood
- b. Hurricane
- c. Earthquake
- d. Wildfire
- e. Tornado
- f. Other

Q2. Have you ever participated in a disaster relief effort?

- a. Yes
- b. No

Q3. How important do you think technology is in disaster response efforts?

- a. Very important
- b. Somewhat important
- c. Not very important
- d. Not important at all

Q4. Have you ever used a system or technology to respond to a natural disaster?

- a. Yes
- b. No

Q5. Do you think that technology can improve disaster response efforts?

- a. Yes
- b. No

Q6. How important do you think it is to consider ethical and legal issues when using technology in disaster response efforts?

- a. Very important
- b. Somewhat important
- c. Not very important
- d. Not important at all

Q7. Do you think your current systems are easy for disaster response teams?

- a. Yes
- b. No

Q8. Do you agree that people experience barriers when trying to access disaster response services?

- a. Strongly agreed
- b. Agreed
- c. Disagreed
- d. Strongly disagreed

Q9. What are the biggest barriers to accessing disaster response services, in your opinion?

- a. Lack of information
- b. Distance to service providers
- c. Inadequate infrastructure
- d. Limited funding
- e. Other (please specify)

Q10. Do you think that technology can help overcome some of the common barriers to accessing disaster response services?

- a. Yes
- b. No
- c. Maybe

Q11. What features do you think are most important in a technology-based disaster response system?

- a. Ease of use
- b. Accessibility for all users
- c. Quick response time
- d. Integration with other systems
- e. Other (please specify)

Q12. Are you aware of any regulatory or legal structures that influence the use of technology in disaster response?

- a. Yes
- b. No

Q13. What types of legal or ethical issues do you think are important to consider when using technology in disaster response efforts?

- a. Privacy concerns
- b. Data security
- c. Liability issues
- d. Access and equity
- e. Other (please specify)

Q14. Do you think that it is necessary to combine the donation processes for various types of disasters on one platform?

- a. Yes
- b. No

2. Interview Question

Q1. What type of system do you use for disaster response?

Q2. Do you think the existing system is effective for disaster response?

Q3. Do you think a digital disaster response platform would create an effective environment?

Q4. How do you complete the legal procedures for disaster response teams?

Q5. Do you think that the existing procedure should be more transparent?

Q6. Do you have any platform that combines all the disaster responses?

Q7. How do you collect victim information?

Q8. Do you think the process is reliable?

Q9. Do you feel there is a necessity for a central database system to store victims' information?

Q10. Have you used any digital disaster response platform for making donations?

Q11. Have you faced any problems regarding donations?

Q12. Do you think a reliable digital platform would make the donation procedure easier?

Q13. Have you faced any problems reaching disaster response teams?

Q14. Which types of problems have you faced?

Q15. Do you agree that a platform that gathers different nearest response teams would solve this problem?

Q16. Have you ever faced fraud?

Q17. Do you feel the necessity of a digital platform to store all the legal documents about the response teams?

Q18. Do you donate on one platform for various types of disaster response?

Q19. Do you think that it would be helpful?