



**SCHOOL OF INFORMATION
CITIZEN INTERACTION DESIGN
UNIVERSITY OF MICHIGAN**

TIPS BY TEXT

TRANSFER & SUSTAINABILITY PLAN

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INTRODUCTION

Citizen tips are often a valuable source of information for the Jackson Police Department as they investigate crimes. However, given the cultural stigma surrounding “snitching” in some communities, citizens are not always willing to offer tips for fear of being labeled as a “snitch”, and being retaliated against. Our task is to create a text messaging system that allows citizens of Jackson to anonymously submit crime-related tips to the Police Department.

METHODS

We began this project by gathering a large amount of data about our assigned project, the stakeholders of our project, and ideas of how to move forward. We first brainstormed and created many versions of a solution that we could implement. These ideas were bolstered by contributions from classmates.

Next, we gathered more information about our stakeholders through interviews and focus groups. We got in contact with a City Council member who graciously agreed to speak with us about our project. Furthermore, she became a contact that was willing to aid us in promotion of our project when the time came. We also interviewed educational staff, the local recreation center staff, youth of the Jackson community, and Jackson police officers. In addition, we utilized data from a technology survey in order to confirm our beliefs that text messaging is a viable avenue of communication for Jackson citizens.

In our research, we came across instances of other cities and towns that implemented a similar system for their citizens. We performed research into these existing systems, other similar services, and on the various methods of anonymous texting. As we described our progress to our classmates and instructors, we also received valuable information about what others had heard and seen from around the world. Coupled with our research, this feedback helped us determine that an anonymous texting system, accompanied by a web application for internal Police use, was the best choice for addressing our initial task.

We dedicated a large amount of time to analyze our research and create a system that would suit the best interests of the Jackson community while also being efficient for the Jackson Police Department. For the Police Department, there were many factors that we had to consider and limitations that bounded our solution. Cost and ease of use were important considerations. We wanted the solution to be as cost-effective as possible, while providing all of the functionality that we needed. In addition, we wanted to create a system that would require little or no training so the officers wouldn’t have to waste valuable time.

There were also limitations that we had to take into consideration as we worked on our solution for the citizens of Jackson, the most vital concern being anonymity. The police department already has several methods by which citizens are able to get in contact with an officer to provide information. These methods are severely underused and our research shows that one of the reasons why they are underused is their lack of anonymity. We found that citizens were not partial to telling the Police information, however people who perform this sort of behavior are known as “snitches”, which is a derogatory term in this community. People aren’t simply made fun of for being a “snitch”, as they and their family may also be retaliated against for this behavior. Therefore, anonymity was of the utmost importance. We wanted citizens to feel safe when they engaged in sending information to the Police.

Our solution also had to be easy to use and widely accessible. This meant that we had to streamline the process for the citizens wanting to use our solution and have it be available to a wide range of citizens. After conducting research on these issues, we decided that texting would be the simplest way for these citizens to use our system. We pondered the use of an application similar to “SnapChat” to ensure anonymity, but we felt that developing a solution that was only accessible through smart phones would alienate too large a portion of the Jackson population. By implementing this system, the Police Department has opened an additional line of communication with the general public. We hope that the anonymity of this system will provide users with an added level of comfort, which may increase their drive to communicate with the Police in this format. Using an SMS based system also provides users with an easy and fast way

Interviews, focus groups, and extensive research all led to our design solution for the city of Jackson:

A format for anonymous tip submissions via text message.

to communicate with the Police, one that doesn't involve physically speaking to an Officer in any capacity. Text messaging is becoming increasingly popular, and we hope that making the Police available in this format will increase the number of citizen tips that they receive.

We looked at numerous options for implementing the texting portion of this system, including multiple service providers. We created a number of lo-fidelity sketches to begin developing our initial design ideas for the web application. After receiving feedback from our partners at the Police Department, we began creating the hi-fidelity prototype that would be the blueprint for our final product. The last part of our process was building the application system. In this process, we met regularly with a web-developer to ensure the integrity of the system, providing detailed instructions and feedback about the functionality and technical logistics of our system.

DESIGN SOLUTION

After completing our research process, we have found that the best way to address this problem is to provide the city of Jackson with an avenue for anonymously texting the police department any and all crime-related information. This number is provided through the *Twilio* cloud-based SMS service, and gives the JPD their choice of phone numbers, which will be the outward "face" of this service. After some discussion, the JPD has decided that **517.7988JPD** will be an easy number for the public to remember and use.

In addition to providing the Police Department with the texting service, *Twilio* provides access to their Application Programming Interface, or API. This access allows our web developer to design and build a web application for internal Police use. This web application, tentatively titled *Tipster*, allows the Police Department to receive incoming texts, strip the incoming phone number from the text message, and replace it with a random-generated ID number. This allows users who text the Police Department number to remain anonymous, as the only information displayed to the Police Department is the system-generated ID number and the text message itself.

In order to provide users of the system with confirmation that their text was received by the Police Department, we've determined that this system will include an automated response message that accompanies each incoming text. Upon sending in a tip via the Tips by Text system, users will receive the following response:

"Thank you for your anonymous tip. If this is an emergency, please dial 911."

We believe that this automated message will indicate to users that their tip was received, and is in fact anonymous, while also urging them to take further action in the event of an emergency.

Twilio offers a number of advantages for this system, providing a cost effective, secure, easy to use, customizable service for the Jackson Police Department.

Tipster will include a basic search system, in order to provide the Jackson Police with a way of searching for and sorting through previously received text messages. The *Tipster* application will also give the Police Department the ability to create folders, which will allow them to group, archive, and store incoming text messages for easy access at a later time. Finally, this web application is designed to look, feel, and function like standard email clients, specifically Microsoft Outlook. As the Jackson

Police staff already uses Outlook on a daily basis, this design choice reduces the amount of time and training that Officers will need to learn to use the new system.

Because we have chosen to use *Twilio*, there is a small monthly cost that is associated with the SMS service. As we're unsure of the amount of traffic that the system will have, we've elected to take the pay-per-text subscription at this time. Current estimates have this costing the Police Department less than \$75 a month. Should the traffic of the site reach a level where paying per-text is greater than \$75 a month, we suggest that the Police Department elect the next level of subscription service, which provides up to 10,000 texts a month for only \$99. Regardless of which subscription options the Police Department chooses in the future, we anticipate the cost of this system should not climb higher than \$125 a month at any time.

In addition to the monthly subscription fees, there are a few potential limitations associated with this system. As we've chosen a text-based service, there is the potential for some incoming messages to be of little or no use to the Police. We anticipate that there will be texts that include information that is not detailed enough to provide the Police with useable information, as the general public may not know what kind of information constitutes a "good tip". In addition, there may be abbreviations and misspelled words included in incoming texts, which may render some tips as difficult to interpret, or even unreadable. At this time, we have decided that allowing the Police to respond to incoming texts would be detrimental to the feeling of anonymity that the public is provided when using this system, and therefore the Police will not be able to respond to incoming texts, requesting more information.

We also anticipate that there will be misuse of the system. As the number will be open to the entire public, there is a chance that abusive text messages may be submitted to the system. This may include profanity, aggressive and offensive language, and other abusive behavior. At this time, we urge the Jackson Police to be patient with this kind of behavior, as the novelty of abusing the system may wear off over time. Should this kind of abuse become widespread, it may benefit the Police Department to begin blocking numbers that frequently abuse the system. This feature should be available through the *Tipster* web application.

IMPLEMENTATION

At this time, the *Twilio* subscription for the Department has already been purchased, and the *Tipster* application is in the process of being built, with an estimated completion date of May, 2014. Upon completion, we believe that the Police should test the system, and acclimate to using the system for approximately one or two weeks. Once comfortable, the system should go "live" to the public in early June 2014.

In addition, we believe that the Police Department should begin marketing the system, alerting the public about the existence of the new system. We have provided the Jackson Police with proposed promotional materials including a flier, a business card, and a PowerPoint presentation (not included in this document) that may be used when marketing the system. Fliers may be placed at any of the locations included in our list of local organizations (**Appendix**), and business cards may be handed out by officers who are regularly engaged with the public. We also encourage the JPD to use existing media contacts to help market the system, including the local print and television media. There may be some costs associated with this marketing "campaign", including costs for print materials (fliers and business cards).

"Getting the word out" will be of the utmost importance for success of the Tips by Text system.

In addition to these traditional marketing outlets, we believe that a system such as this one will benefit greatly from word-of-mouth advertising. In this document we've included a number of organizations that citizens of Jackson are frequently engaged with (**Appendix**); organizations that we believe will be very helpful in spreading the word about this new system. We recommend giving short presentations to these organizations about how the system works, and how it benefits the public. These organizations should also be given the aforementioned print materials, including fliers and business cards that may be posted or handed out to the public at large.

MEASURING SUCCESS

As this system is the first of its kind in Jackson, and the use of the system is currently unknown, we recommend that the Jackson Police commit to using the system, regardless of success, for a period of no less than one year. This will give citizens of Jackson ample time to become aware of the system, and adopt it as their own. This will also give the Police Department time to evaluate the use of the system, as well as the quality of incoming texts, and the action that results from incoming texts.

We recommend being patient during this time, as the citizens of Jackson may take months to adopt and begin using this new system. During the first 3 months of implementation, we encourage the Police Department to visit no less than 2 of the organizations listed in the **Appendix** per month, giving presentations on the system to the leadership or general

membership of these organizations. This will be crucial to the growth of the system, as the public frequents these spaces, and respects the leadership of those organizations.

In addition, we believe that the Jackson Police should monitor the use of the system closely. We believe that the system should aim to reach the following goals:

- June-July – 25 Total Texts received
- August-October – 55 Total Texts received
- November-February – Average of 25 Texts a month received
- March-June – Average of 40 Texts a month received

Reaching these goals will show consistent growth of the system, and will give the Jackson Police a sense of how the system is being used, and with what frequency. Because use of the system is unknown at this time, these success metrics should be revisited and reevaluated frequently. Should the system greatly outgrow the current goals, new goals may be developed.

In addition to meeting the incoming text goals listed above, we believe that the Police Department should keep basic statistics on the following types of incoming texts:

- Number of abusive texts received per week/month
- Number of incoming texts that do/do not include useable information
- Average number of texts per week
- Increase/Decrease around Weekends, Holidays, and special events (i.e. July 4th or Thanksgiving)

These statistics will help give the Police Department a snapshot of types of use of the system, as well as provide them with some basic knowledge about the general patterns of use of the system. These statistics may lead the Jackson Police to consider the quality of the usage of the system, in addition to the pure numbers of incoming texts.

Careful monitoring of the Tips by Text system is crucial to measuring the success and usability of this new service.

Finally, we believe that the Jackson Police should not hesitate to publicize instances when information from text messages lead to action from the Police Department. For example, Police action based on information received (at least in part) from the texting system may be publicized on the city's Nixle site. This

may help signal to citizens of Jackson that the Police Department is responsive to incoming texts, and that the public's input is important.

12 months after launch, we believe that the Jackson Police should reflect on the first year of use of the system, using the statistics and metrics mentioned above, to evaluate the Tips by Text system. Officers who frequently use the *Tipster* interface should be given the opportunity to reflect on their experiences with the interface itself, and the texting system as a whole, providing feedback on what is and is not working. Using the statistics and this feedback, the Jackson Police should consider if and how to move forward with the Tips by Text system, including but not limited to:

- Internal procedural changes
- Changes to the *Tipster* interface
- New success metrics
- New advertising/marketing ideas

At this time, all necessary alterations to the system and surrounding processes should be made. Should the Police Department conclude that the system is no longer in their best interests, the *Twilio* subscription should be canceled, and the public should be made aware that the Tips by Text number is no longer in service.

MAINTAINING THE SYSTEM

The Tips by Text system is cloud based and includes certain monthly subscription or service costs to be up and running. The system is built on a service layer provided by *Twilio Inc* and all the payments are payable to them.

Twilio is a cloud based communications platform that is used by various multinational companies for their internal communication as well as communicating with customers. It has a robust backbone that can serve almost everyone on the planet. The rationale behind going with *Twilio* is to leverage its enterprise grade security and reliability.

The costs to keep the system running include:

- A monthly payment for the subscribed phone number. This is a nominal fee of \$1 every month to keep using the desired phone number associated with the system, in this case **517.7988JPD**.
- A monthly payment for the volume of texts sent and received. The cost associated is \$0.0075 for every text sent or received. To put this in context, when a citizen texts the system and receive an automated response, the total cost incurred is \$0.015.
- Time devoted to monitoring incoming texts. If the system turns out to invite a lot of text messages, then multiple officers may be needed to attend to the incoming text messages.

In the initial days of deployment, you may run into some issues regarding usage or just general installation of the software. In these cases please feel free to contact any member of our team, as we will be available to help.

As the system is being built as a web application, a web server needs to be maintained. This server can either be a dedicated computer that is always connected to the internet, or a system that will be used to access the software can also act as a server. However, it has been recommended by the web developer to have the system installed on a dedicated server, an option that is currently being considered by the city.

Because *Twilio*'s servers handle all the back-end services of the software, the police are only required to keep the server running and attend the incoming text messages. In case of any misbehavior by the system, for example texts not being received, *Twilio* must be contacted via e-mail at help@twilio.com. In case of general concerns such as billing and other issues, Maren Hotved [mhotvedt@twilio.com] can be contacted, as she is the designated customer service associate for this account.

Twilio offers the Jackson Police Department 24 hour technical support, as well as a dedicated customer service associate for the Tips by Text account.

The City IT service is looking at setting up a dedicated server for a number of the Citizen Interaction Design projects. If they do succeed in setting up a server, our software may be hosted there. Lori Lewis [llewis@cityofjackson.org] is currently the person of interest in developing this possibility. Additional technical support throughout the lifespan of the project may be provided by the City IT service.

CONCLUSION

Inspired by an idea from the Jackson Police Department, this project aims to provide the citizens of Jackson with a new avenue for anonymously submitting information to the Police Department. The Tips by Text system that we have developed and built has been the product of extensive research, and a collaborative design process. The Tips by Text system has the potential to benefit both the citizens of Jackson, and the Police Department, as this service provides functionality on an easy-to-use platform for both parties. While the Tips by Text system is still new to the City of Jackson, it has the potential for large growth and widespread use. Promoting the system, as well as evaluating its use will help enhance communication between the citizens of Jackson, and the Jackson Police Department.

ACKNOWLEDGEMENTS

We would like to thank our Partners from the City of Jackson, and the Jackson Police Department for their guidance and patience throughout this project. Their ideas and input are evident throughout our solution, and Deputy Chief John Holda and members of the JPD were extremely cooperative, and were a pleasure to collaborate with on in this project.

Thank you to City Councilwoman Arlene Robinson, who dedicated her time and input to this project as well. In addition, she provided us with a number of ideas and avenues for promoting and marketing the Tips by Text system. Thank you Arlene!

The staff and community members at the Martin Luther King Jr. Recreation Center were also extremely helpful, providing input from a number of different perspectives. Their cooperation and eagerness to contribute to our project was extremely helpful in helping shape our design ideas.

Our Citizen Interaction Design program Administrators were no end of knowledge and support for this project. Dr. Cliff Lampe, Kelly Kowatch, and Scott TenBrink were incredibly useful in providing resources, feedback, and new ideas to our project. Their guidance and support were instrumental to our success this semester.

Finally, we would like to the citizens of Jackson for their involvement in this project. Their time and input in our focus groups, interviews, and other interactions was not only the most important aspect of our project, but also the most fun. We've done our best to build a system that will be of service to the community, and while we may not have thought of everything, we hope that we've made a small contribution to the overall good of the city of Jackson. Thank you!

APPENDIX

A list of proposed places/outlets that we believe the Jackson Police Department would benefit from promoting the Tips by Text system:

- Church Groups
 - Rev. Lane, President of S.E.M.A
- NAACP
- Service Organizations (Elks Club, Kiwanis, etc.)
- Local Hospitals & Clinics
- City Recreation Department
 - Recreation Centers
 - Youth & Adult Sports Leagues
- School Superintendents & Principals
- Human Services Agencies
 - Child Protective Services
 - CPCAN
- Local News Outlets (Lansing TV / JTV / MLive)
 - Local Newspapers
 - AM Radio Stations
- Jackson “Ward Meetings”
- City-Funded Summer Programs
- Homeowners via the Jackson Housing Commission
 - Include information about Tips by Text in “Welcome Package” to new residents
 - Monthly Jackson Housing Commission meetings
- Flyers in areas frequented by local Youth
 - Movie Theatres
 - Malls
 - Local Colleges
 - Recreation Parks
- Volunteer Organizations
 - i.e. Boy/Girl Scouts of America
- Lily Mission Center & the YMCA
- Nursing Homes

CONTACT INFORMATION

For information regarding this document, or the Tips by Text project, please feel free to contact the following Tips by Text team members:

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