
SAMUDAI:

A community engagement system

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Abstract

In today's world uncertainty is the only certainty. People are continuously evolving and changing. The society is changing along with us. People are getting distant from each other. We have online friends from all over the world but don't know our own neighbors. This has many disadvantageous effects during adverse conditions like extreme weather, economic fragility, civil and political unrest, animal disease, pandemic influenza and infrastructural fragility.

Smart cities are a way to improve this condition and make people more aware of the surroundings. Humans are social beings who like to have a sense of belonging. Moreover, the better interpersonal relationship you have with an individual the more you are inclined to help them in a difficult situation. This becomes really important especially when your community is your primary source of support during unforeseen emergencies.

Our system is designed to help people reconnect to the people around them rather than just the people millions of miles away. This will help strengthen the social capital thus increasing the community resilience.

Author Keywords

Authors' choice; of terms; separated; by semicolons; include commas, within terms only; required.

ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous; See <http://acm.org/about/class/1998> for the full list of ACM classifiers. This section is required.

Introduction

'Individual and community social capital networks provide access to various resources in disaster situations, including information, aid, financial resources, and child care along with emotional and psychological support.' (Elliott, Haney, & SamsAbiodun, 2010; Hurlbert, Haines, & Beggs, 2000; Kaniasty & Norris, 1993).

.....'scholars have agreed on fewer metrics for social capital than other economic or demographic factors (Meyer, 2013; Ritchie, n.d.), practitioners have

underutilized social cohesion and social networks in disaster planning and management (Aldrich, 2010; Wisner, 2003).'

Humans have always been social beings. But nowadays due to various social networking platforms that allow people to socialize without leaving the comforts of their home, most of the times they don't get to actually meet the people that live right next to their homes. This can be problematic during many situations. People need all kinds of help in many day-to-day settings and our primary source of assistance are our neighbors. Getting to know them can help us in many ways as it increases goodwill. Our goal for a design was to use an individual's online presence to help them physically socialize with the people around them.

'However, fast internet crowded out forms of cultural consumption that are usually enjoyed in company, such as watching movies at the cinema and attending concerts and theatre shows. In addition, broadband penetration significantly displaced civic engagement and political participation, i.e. time-consuming activities that usually take place during leisure time, are not pursued in order to reach particularistic goals, and generally relate to a non-self-interested involvement in public affairs.' (Did the Internet displace Social Capital be Fabio Sabatini)

The above excerpt clearly shows how social networks alienate people from their surroundings.

We have designed a system to use this technological advancement in our favor and design a product that will help people strengthen the social capital. Samudai. A smart system for a smart community. A smart city.

Methods and Related Work

We started our ideation by the double diamond design process (Design Council, 2005).

Starting our research, we divided up different academic papers related to the subject in hand, after which we regrouped and discussed about our findings with each other. The main points from all the papers were pin pointed and the problem areas were identified.

After brainstorming on the different problems that we identified we started noticing a recurring theme of defining smart city as not only development of physical infrastructure but also the social infrastructure. We decided to look more into the social aspect of smart cities and how we could develop it. With our current geographical location (Assam, India) as reference we started listing the main factors that can affect a society like calamities, economic breakdown, terrorism, lack of connectivity, transport problems etc. Then we looked into factors that ensure social well-being like low crime rate, social gatherings, trust etc. We also took into consideration the introverts who won't appreciate being forced to socialize. After exploring each factor individually, we decided to focus on designing a system that helps in bringing the community closer to each other personally thus increasing the social capital.

Our initial ideas were either very main stream (like a dating app but also to find friends) or too intrusive, which we realized after thinking about it from the user's point of view (AI technology that could record all your activities and gather your information about you that way). After a lot of refining and conceptualization we

finalized our design for a system that will help people know their community. Will keep them safe.



Figure 1 The main points from all our readings and the problem areas.

A system like this will also increase health benefits as studies have proved that socializing helps mental and physical health.

"Comparing suicide statistics in European countries across time and space, Durkheim concluded that the lowest rates of suicide occurred in societies with the highest degrees of social integration. Conversely, an excess of suicides occurred in societies undergoing various forms of dislocation and loosening of social bonds." (Social Epidemiology edited by Lisa F. Berkman, Ichiro Kawachi).

Design

The goal that our system aims to achieve is to promote social interaction within a community. Provide a safe space for people to locate events going on around them that they can take part in and over all maximize their participation in social gatherings so that they have an idea about their community and know the people that they are living with.



Figure 2 The system design.

This is an integrated information and communication technology that will be inbuilt in all personal wearable devices that enter the city. The system will collect data from the online presence of each individual and thus create a basic database about the interests and hobbies of that particular individual. They can also volunteer personal information.

The features of the system are as follows:

1. *Community credit* – Community credit is a currency for the people in the city that works on the principles of goodwill instead of profit.

Initially, each individual will have a default of 20 credits. The system will have a list of the people around the individual and their skill base. If a person wants to learn a new skill then all they need to do is type in the skill name and find out how many people near them are experienced in that particular skill. You can then contact them and learn the skill from them in exchange for a few credits.

Conversely, you can add in the skills that you are proficient in and teach those to other people in exchange for credits. The basic principle being,

"The more you teach, the more you learn".

2. *Event finder* – People can put up a message, community wide, notifying them about an event that is going to take place along with the necessary details. The system, with the help of the database collected for the individual, decides whether they will be interested in that particular event or not. If yes then it notifies them otherwise it blocks the notification to avoid unnecessary clutter.
3. *Emergency situations* – This is an interconnected emergency alert system, which brings together all the appropriate authorities and resources during any crisis faced by the community. It has crowd-sourced data, collected to make sure that safe passages and spots are identified before any emergency and taken into consideration during such a situation. It can also sense increased heart beat and high heat signatures which result in a prompt message along with vibration asking if there is an emergency. If it doesn't get a response then it assumes that it is an

emergency and notifies the appropriate authority. It will also tell us about the people that are already in our community who might have some experience with that particular emergency and thus can help us. For example, if there is a fire in the community and one of the residents works in the fire department or has prior experience or information on how to deal with fires then the system will tell us. Since the community will know each other because of community credit, the community itself will be proactive in helping each other and overcoming the emergency.

We decided to call our system 'Samudai', the Hindi (Indian language) word for 'community'.



Figure 3 The concept sketch.

Discussion

Samudai is an amazing way to meet the people around you with a purpose to do so. It increases the goodwill among the community members and encourages them to help others out by sharing their knowledge. It can also be very helpful during calamities as it guides the people towards safety and also promotes them to help each other and play on the individual's strength. But, like any other system, this system could also be misused. People could lure other people into dangerous situations on some pretext but that can also be avoided by simply knowing your community which is the whole point of this system. If you know your community then you will know about the people in it. So, there will be less chances of someone managing to dupe you.

Possible future work could be development of a payment system inside the community for transportation and other services. Promoting green city ideologies and encouraging the residents to follow eco-friendly steps in day-to-day life.

Conclusion

To summarize, we have designed a system that;

1. Helps to strengthen the social capital.
2. Increases the community resilience.
3. Focuses on the social infrastructure.
4. Is tailored to the community.
5. Makes the community self-sufficient to a very large extent.

References

- Aldrich, D. P., & Meyer, M. A. (2015). Social capital and community resilience. *American behavioural scientist*, 59 (2), 254-269.
- Chandra, A., Acosta, J. D., Howard, S., Uscher-Pines, L., Williams, M. V., Yeung, D., ... & Meredith, L. S. (2011). Building community resilience to disasters. Retrieved from https://www.rand.org/content/dam/rand/pubs/research_briefs/2011/RAND_RB9574.pdf
- Hollands, R. G. (2015). Critical interventions into the corporate smart city. *Cambridge Journal of Regions, Economy and Society*, 8 (1), 61-77.
- How do we understand Smart City? An Evolutionary Perspective Prof. Dr. Nathalie Crutzen, Dr. Rama Kummitha Smart City Institute, HEC Liège (Belgium) ERSA Conference, Vienna, 25th August 2016
- Murray, M., Pantidi, N., & Hogan, T. (2019, June). Conflict and Belonging: Socially engaged art practice as a resource for resilience-building in rural communities. In *Proceedings of the 9th International Conference on Communities & Technologies-Transforming Communities* (pp. 60-64). ACM.
- Silberman, M. S. (2015). Information systems for the age of consequences. *First Monday*, 20 (8).
- Social epidemiology - edited by Lisa F. Berkman, Ehiro Kawachi.

Link to concept video:

https://youtu.be/3HWKthm_Sxo

Link to blog: www.codecoffee.science.blog