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Mobile Crowd Sending in Traffic Monitoring

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Abstract

Objectives: To propose a technology to sense the environment without using the dedicated architecture for sensing. **Methods/Statistical Analysis**: Mobile crowd sensing is a new emerging technology in the field of wireless sensor network environment monitoring. Wireless sensor network monitoring enters a new paradigm with mobile crowd sensing. The technology makes the user to participate in the event and user's mobile device is used to communicate the data in different environment. The sensing network uses the mobiles of user to collect the data. In our application discussed here we are monitoring the traffic in public transport system. We use the public's opinion to collect data by an application in their mobiles. Through we are able to know the traffic in road, crowd in the buses, and quality of buses. **Findings:** We also compared this with normal wireless sensor networks used for monitoring the transport in the roads on comparison we find the MCS provides better sensing than normal wireless sensor networks in the case energy management, memory management and performance improvement. **Application/Improvements:** The technology can be improved or established in train transport and other public place cleanliness monitoring.

Keywords: Energy Conservation, MCS, Memory Management, Public Transport, WSN

1. Introduction

Various researches in wireless sensor networks give the difficulties in maintaining the nodes in a wake mode all the times (Figure 1). Wireless sensor networks have problem of power discharge and node damage by external sources. By immunizing the technique of mobile crowd sensing.[1-3] We make user to participate in the process which makes the nodes of sensing to be powered all the times and nodes won't be damaged by external forces. The main threat in mobile crowd sensing is integrity of the information given and the making users to participate in Mobile crowd sensing. Here, big task involves in inviting the users to use this service. Here we need to provide various complimenting methodology to users various works are upcoming these days in Mobile crowd sensing.[4-6] The research works monitors the traffic in Road transport, crowdedness in different times in public transport, availability of buses or train at correct time and also air pollution in the particular area in different times and mainly Hygienic conditions in bus and train station.

2. Methodology and Proposed System

We prepare a technique here for public transport monitoring. We are making user to install the app to give inputs regarding the public transport. The user provided with some complimenting techniques to update their inform about quality their journey (Figure 2). Here the user can access the application with user ID created.[7-9] The user can login to application or software using their mobile device. They are supposed to provide needed information in the form in time to time basis. In case of time to time basis be can login and post various information like form given below.

1. No of passengers
2. Nature of traffic
3. Air pollution
4. Vehicle travelling
5. Cleanliness of vehicle

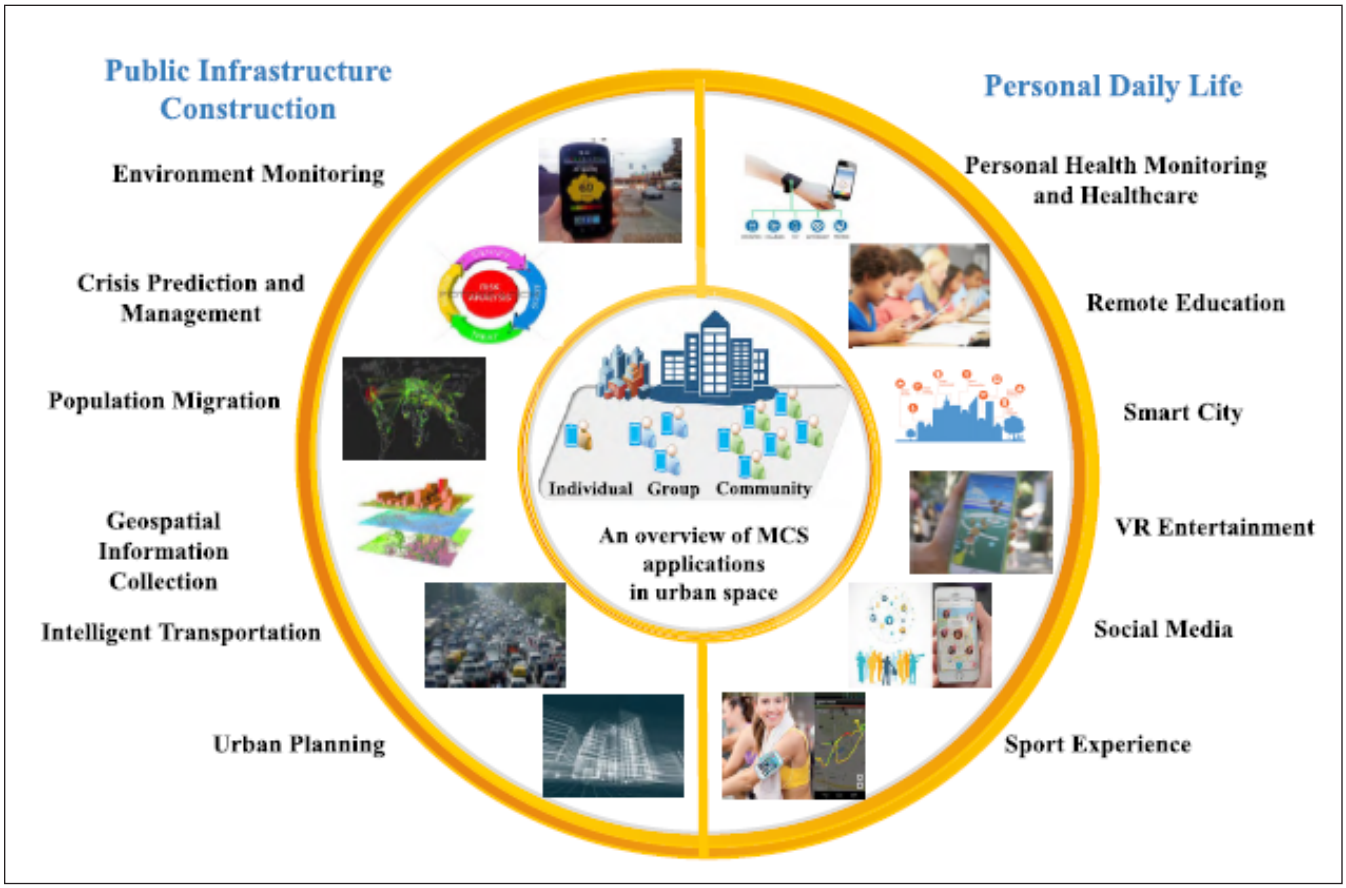

Figure 1. Existing works of MCS.

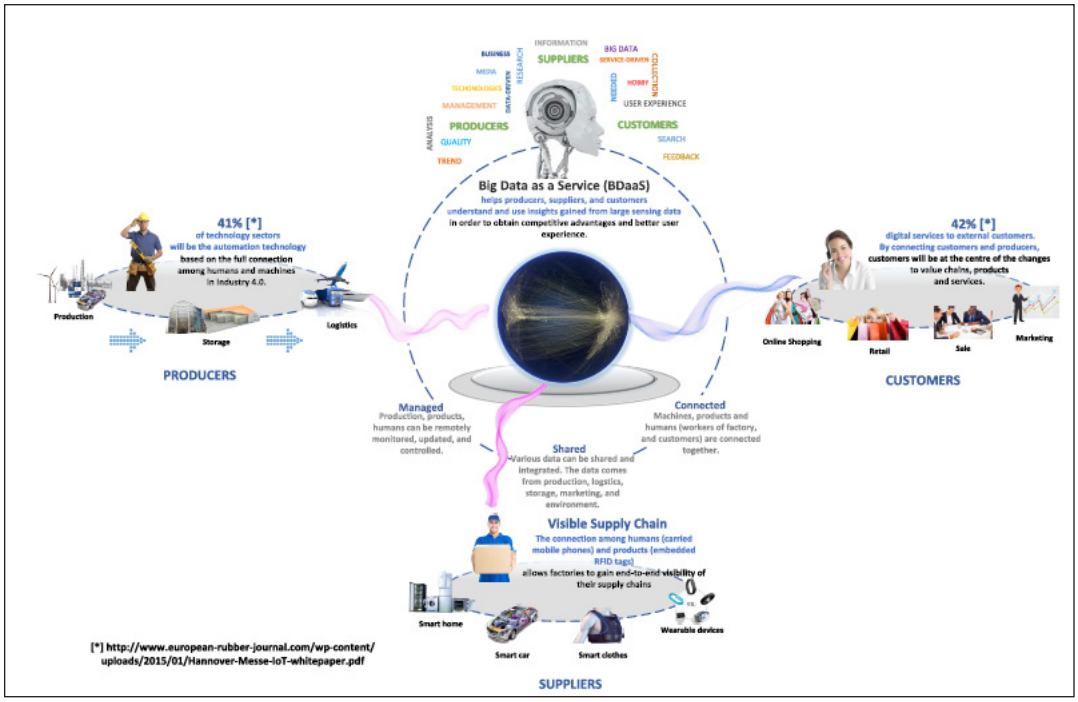

Figure 2. Framework of MCS in industrial. Public Transport spaces.

Here the software installed makes the user to enter the data or some typical process like air pollution and habitat monitoring involves automatic detection of environment using various sensors:

The data sensed are transmitted or saved to cloud services and made available to all internet users. The user, who is interested about the particular habitat or travelling experience, will browse to see the reviews by previous users (Table 1).

Table 1. Mobile crowd sensing vs wireless sensor network

Parameter	MCS	WSN
Traffic	**Yes**	**Yes**
Pollution	**Yes**	**Yes**
User experience	**Yes**	**No**
Power assurance	**Yes**	**No**
Cost effective	**Yes**	**No**
Information	**No**	**yes**

The proposed system enable user to choose traffic free transport, crowd less vehicles, and to follow the timings of buses correctly. The user does not need specialized architecture for using the service. The power supply problem also avoided here, as the users will take care of their own devices. We can use various types of uses feedback regarding the transport quality.

3. Results and Discussion

Here we can categorize the input into two types' nature conditions and customer experience mainly we are using typical sensors to measure the environment natural characteristics using the sensors available in the mobile (Figure 3). The sensors like moisture sensors and noise pollution monitoring sensor are used to fetch the data automatically and summarize the data and provide information about the traffic conditions.[10] In case of Railways this type of sensors are used to monitor the hygienic condition of toilets avail in the train (Table 2). The Mobile crowd sensing is performing both automatically and manually to provide needed data.

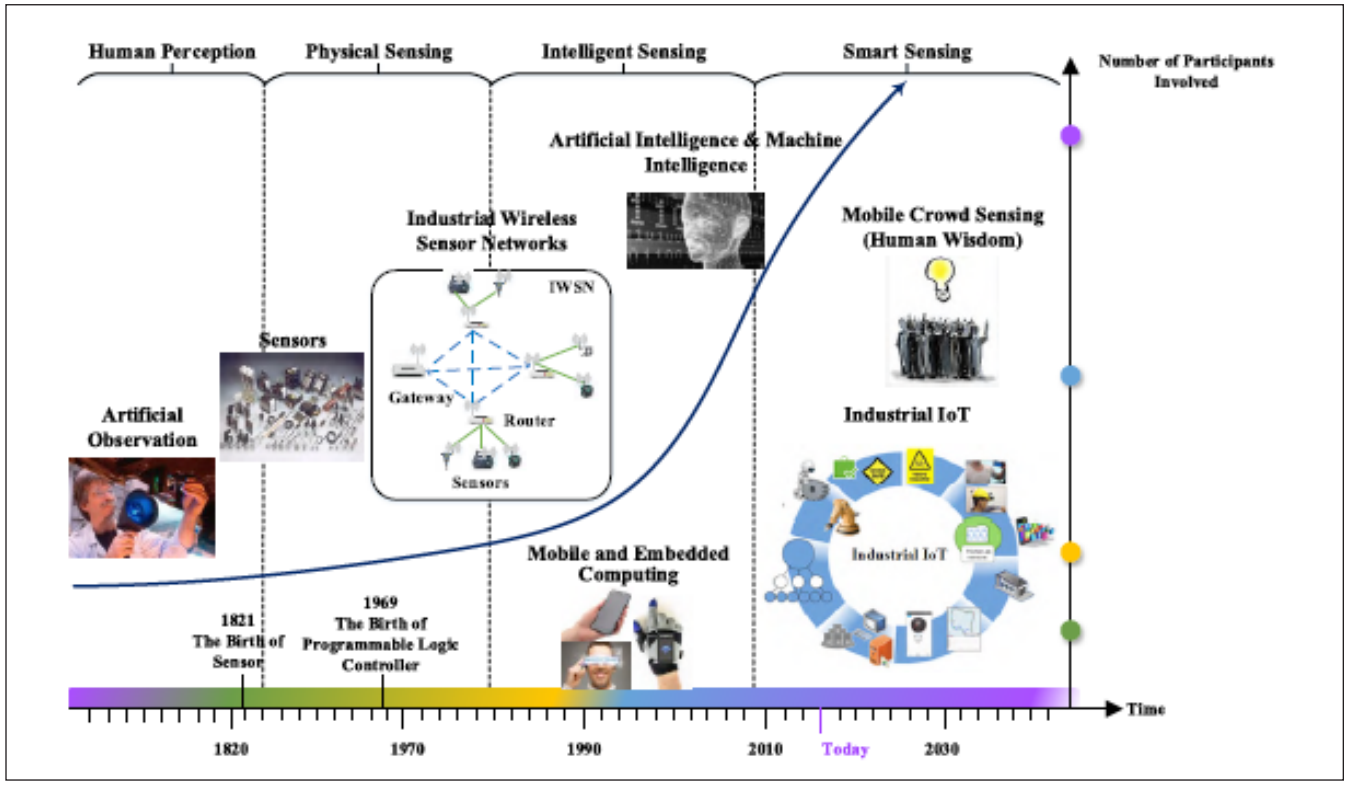

Figure 3. MCS meets industry.

Table 2. Cost comparison between MCS and AI-based sensing

	Typical Industrial Requirement	MCS	AI-Based learning
Environmental monitoring	Full coverage	Easy to obtain	Very hard
	Scalability	Easy	Very hard
	Mobility	Very Easy	Less possible
Personal Monitoring	Health	Very Easy	Not possible
	Location	Very Easy	Not possible
Process monitoring	Quality Checking	Not always possible	Easy to handle
	Asset Tracking	Easy	possible
	Location	Easy	possible
Product monitoring	Customize Feedback	Very Easy	Very hard
	Logistic Tracking	Easy	Not possible
	Location	Easy	Very hard

4. Conclusion

Mobile crowd sensing is a new emerging technique used in habitat monitoring where even tourist can be monitored, without any additional infrastructure. It mainly Creates new way in determining the opinion of the crowd. It is used to monitor the environment like road transport, train and infrastructure collapsed environment. Comparing to the existing Wireless sensor networks technique, it offers better performance in terms of power supply, reliability, range of communication and secured communication. Apart from some creditability issued by users providing information, Mobile crowd sensing is better system which communicates the information about the environment.

5. References

1. Cardei M, MacCallum D, Cheng MX, Min M, Jia X, Li D. Wireless sensor networks with energy efficient organization. Journal of Interconnection Networks. 2002; 3: 213–29.
2. Chamberland JF, Veeravalli V. Decentralized detection in sensor networks. IEEE Transactions on Signal Processing. 2003; 51(2):407–16.
3. Chang RS, Wang SH. Self-deployment by density control in sensor networks. IEEE Transactions on Vehicular Technology. 2008; 57(3):1745–55.
4. Chen A, Kumar S, Lai TH. Designing localized algorithms for barrier coverage. In: Proceedings of the 13th annual ACM international conference on mobile computing and networking; 2007. p. 63–74.
5. Chen A, Lai TH, Xuan D. Measuring and guaranteeing quality of barrier-coverage in wireless sensor networks. In: Proceedings of the 9th ACM international symposium on mobile ad hoc networking and computing; 2008. p. 421–30.
6. Chen B, Jamieson K, Balakrishnan H, Morris R. Span: an energy-efficient co-ordination algorithm for topology maintenance in ad hoc wireless networks. Wireless Networks. 2002; 8:481–94,
7. Cheng W, Li M, Liu K, Liu Y, Li X, Liao X. Sweep coverage with mobile sensors. In: IEEE international symposium on parallel and distributed processing; 2008. p. 1–9.
8. Cheng X, Du D-Z, Wang L, Xu B. Relay sensor placement in wireless sensor networks. Wireless Networks 2008; 14: 347–55.
9. Sujatha K, Nandagopal C. Realization of gateway relocation using admission control algorithm in mobile WIMAX networks. 4th IEEE International Conference on Advanced Computing (ICoAC); 2012. p. 1–5.
10. Nandagopal C. A Comparative analysis of coding schemes in low power baseband Transceiver IC for WBAN. International Conference on computing, Electronics and Electrical Technologies (ICCEET); 2012. p. 812–7.
11. Sariga S, Nandagopal C. Network on Chip Architectures. Journal of Engineering and Technology Research. 2016; 4(5):1–9.