ISSN (Print) : 2320 – 3765
ISSN (Online): 2278 – 8875

International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering

(An ISO 3297: 2007 Certified Organization)

Vol. 3, Issue 9, September 2014

Simulation of an Efficient Wireless Push System Using Smart Antennas

J.Purnachandu[1], Santhi kiran.B[2]

M.Tech Scholar, Department of ECE, Andhra Loyola Institute of Engineering and Technology, Vijayawada, AP, India[1]

Assistant Professor, Department of ECE, Andhra Loyola Institute of Engineering and Technology, Vijayawada, AP, India [2]

ABSTRACT: In wireless telecommunication, the network consists of a broadcast server with a set of clients. It sends a group of information to the clients in a desired closed loop path. According to the information send by the broadcasting server the clients access it this should be happen in a cyclic path. In olden days we use fixed directional antennas for transmitting the signal from one place to another. Due to some drawback over the existing one we use multiple directional antennas at the Broadcast Server has been shown to increase performance. In many cases however, such broadcasting systems fail to exploit the full potential of the multiple antennas as they do not take into account the geographical distribution of clients within the coverage area of the system. In this project we are proposes an adaptive smart antenna based wireless push system where the beam width of each smart antenna is altered based on the current placement of clients within the system area. Coupled with a modification of the broadcast schedule, the proposed approach significantly increases the performance observed by the system clients..

KEYWORDS: Cognitive Radio, Spectrum Sensing, Efficient Communication, System Security.

I.INTRODUCTION

Wireless telecommunications refers to the transfer of information between two or more points that are not physically connected. Distances can be short, such as a few meters for television remote control, or as far as thousands or even millions of kilometers for deep-space radio communications. It encompasses various types of fixed, mobile, and portable applications, including two-way radios, cellular telephones, personal digital assistants (PDAs), and wireless networking. Telecommunication is the science and practice of transmitting information by electromagnetic means. Communication is talking to someone or thing not necessarily through technological means. Telecommunication, however, is talking through technology meaning phones, Internet, radio etc.

In earlier times, telecommunications involved the use of visual signals, such as beacons, smoke signals, semaphore telegraphs, signal flags, and optical heliographs, or audio messages such as coded drumbeats, lung-blown horns, and loud whistles. In modern times, telecommunications involves the use of electrical devices such as the telegraph, telephone, and tele-printer, as well as the use of radio and microwave communications, as well as fiber optics and their associated electronics, plus the use of the orbiting satellites and the Internet. Data broadcasting is the broadcasting of data over a wide area via radio waves. It most often refers to supplemental information sent by television stations along with digital television, but May also be applied to digital signals on analog TV or radio. It generally does not apply to data which is inherent to the medium, such as PSIP data which defines virtual channels for DTV or direct broadcast satellite systems; or to things like cable modem or satellite modem, which use a completely separate channel for data.
The main goal of our project is to propose the use of smart antennas at the BS. The ability of smart antennas to alter their beam width is exploited so that the coverage of each antenna is adapted according to the current placement of clients within the system. And also we fulfill the client requirements calculated using some probability updating algorithms and Broadcasting algorithms. To obtain this goal we have to calculate the probability of distribution among the user. And also calculate the mean response time for the entire group or various numbers of groups present in the system. The Directional antennas are used in communication systems for transferring information to the clients according to their needs. The yage-uda antenna and dipole antenna are some of the antennas used for communication purpose. In the existing system uses the directional antennas with fixed beam width. The main drawback of this kind of

ISSN (Print) : 2320 – 3765
ISSN (Online): 2278 – 8875

International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering

(An ISO 3297: 2007 Certified Organization)

Vol. 3, Issue 9, September 2014

antennas are fail to exploit the full potential of the multiple antennas as they do not take into account the geographical distribution of clients within the coverage area of the system, and also we cannot alter the beam width according to the client's need. Due to the fixed beam width in directional antennas the some of the antennas handle more number of clients and some of them handle less number of clients this makes the distribution among the clients not-uniform, and also we cannot fix a set of clients to it.

II. LITERATURE SURVEY

In [1,2] it is mentioned that pull based system consist of broadcasting server and group of clients they are connected via channel. In this system the server only broadcast the information that is demanded by the clients. These types of system also consist of client server and a group of clients. The server broadcast the common information to all the clients present in the system. By using the push based systems all clients presented in the system should receive common information, and should not perform any queries about the information. By comparing with pull based system, push systems are mostly used in telecommunications for transferring information to the clients. The main advantage of push based system over the pull system is initialization cost [3]. In the push based system the broadcasting information should be arrange by their weights due to some advantage over these type of weights we proposed some algorithms for reducing this kind of broadcasting problems. So all low cost broadcasting algorithms are used push type of system for transferring information to the clients.

In underwater communication it is introduced another technology namely 'Adaptive data broadcasting' [4,5] for providing the client demands. The word 'Adaptive' represents that the broadcasting schedule should be changed according to the situation or else according to the client demands. It should be achieved by using Learning Automaton (LA). This tool mainly used to find the client demands in the underwater communication [6,7]. Many types of underwater wireless networks use push based systems for its communication to transfer the information from the broadcasting server to the clients who are presently in the group.

III. PROPOSED SYSTEM MODEL AND RESULTS

Due to some disadvantage over the existing system we propose another technique called smart antennas with rescheduling application. The use of multiple directional antennas at the Broadcast Server has been shown to increase performance. In many cases however, such broadcasting systems fail to exploit the full potential of the multiple antennas as they do not take into account the geographical distribution of clients within the coverage area of the system. This letter proposes an adaptive smart antenna based wireless push system where the beam width of each smart antenna is altered based on the current placement of clients within the system area. Coupled with a modification of the broadcast schedule, this should be done by using learning automaton tool on the broadcasting server side. The proposed approach significantly increases the performance observed by the system clients.

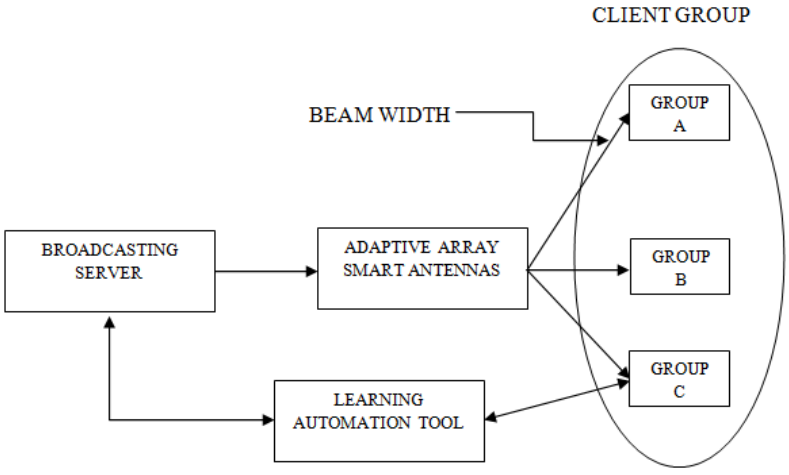

Fig.1 Proposed System Block Diagaram

ISSN (Print) : 2320 – 3765
ISSN (Online): 2278 – 8875

International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering

(An ISO 3297: 2007 Certified Organization)

Vol. 3, Issue 9, September 2014

The following are the advantages of the proposed system.

- Antenna beam width is not fixed.
- System performance is significantly increased.
- Client requirements should be fulfilled.
- Multi- directional signal accessing is possible.

Fig.2 shows the mean response time versus group size skew coefficient in network N1. Whereas Fig.3 represents mean response time versus group size skew coefficient in network N5. Fig.4 represents mean response time versus group size skew coefficient in network N6.

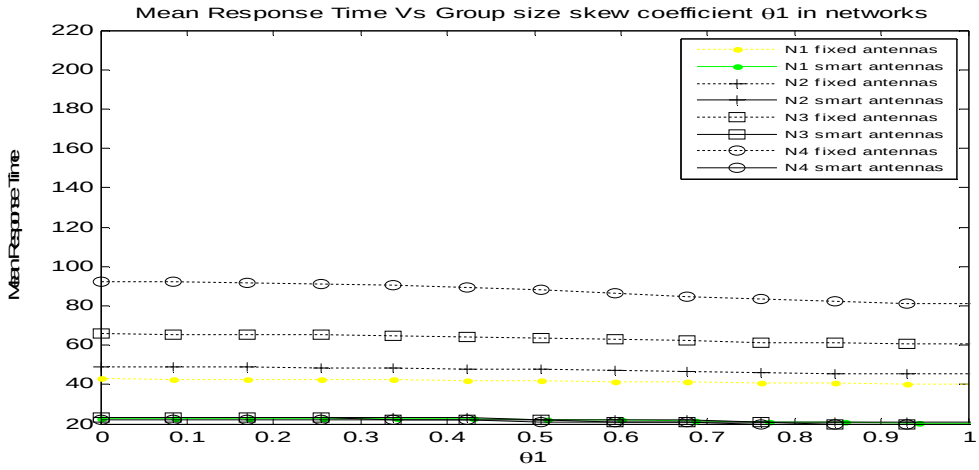

Fig.2 Mean response time in network N1

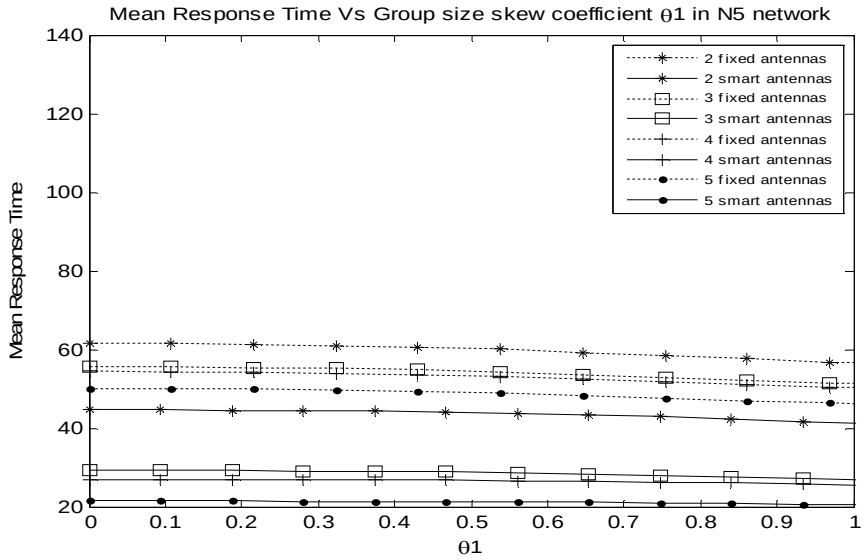

Fig.3 Mean response time in network N5

ISSN (Print) : 2320 – 3765
ISSN (Online): 2278 – 8875

International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering

(An ISO 3297: 2007 Certified Organization)

Vol. 3, Issue 9, September 2014

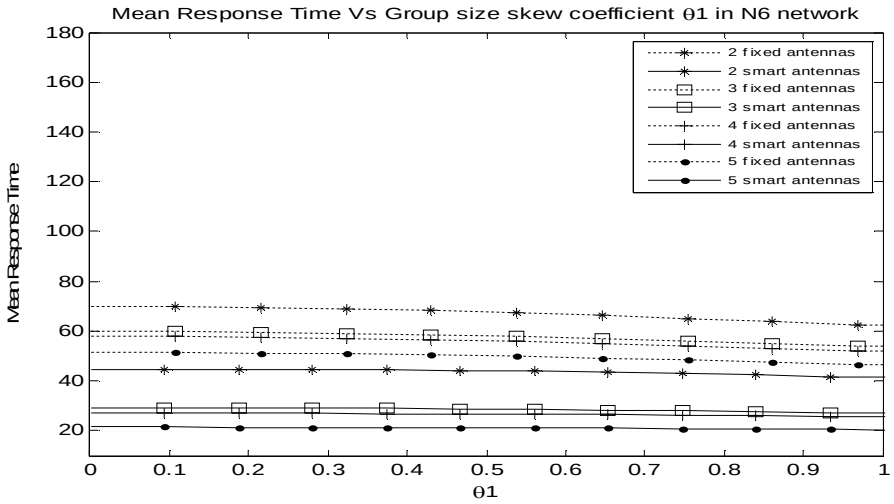

Fig.4 Mean response time in network N6

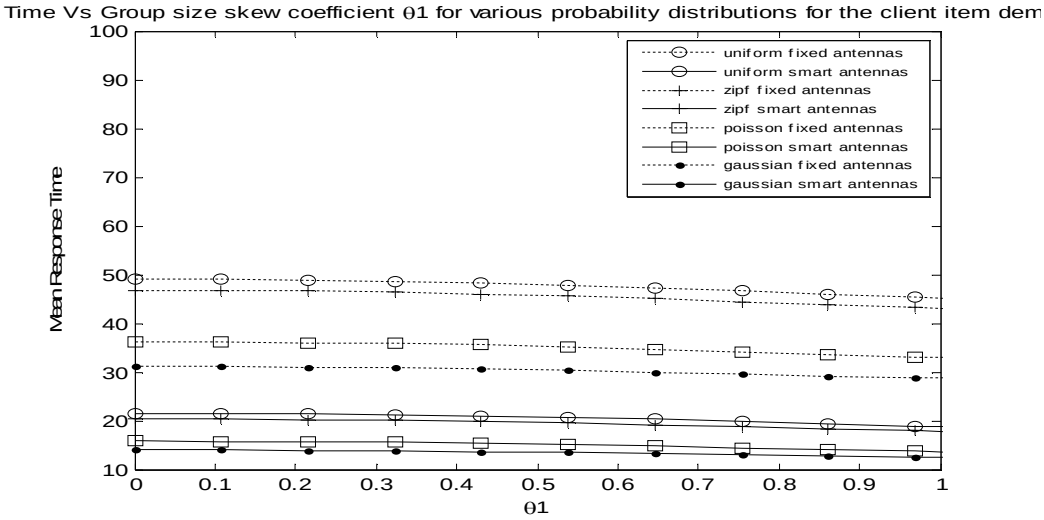

Fig.5 Probability distribution graph for various network cases

IV.CONCLUSION

It is evident from the performance evaluations plots in which several network scenarios that the proposed push pull systems has a better results in terms of several performance parameters like probability distribution and mean response time.

REFERENCES

1. K C. Liaskos, S. Petridou, and G. Papadimitriou, "PUSH AND PULL BASED SYSTEMS," Computer Communication Journal, vol. 32, no. 18, Dec.2011
2. P. Nicopolitidis, G. I. Papadimitiou, and A. S. Pomportsis, "Adaptive Data Broadcasting," IEEE Telecommunications Magazine, vol. 12, no. 3, , 2010.
3. C. Liaskos, S. Petridou, G. I. Papadimitriou, P. Nicopolitidis and A.S. Pomportsis, "Wireless Data Broadcasting," in Proc. IEEE Feb. 2010.
4. R. Chen et al., "Toward Secure Distributed Spectrum Sensing in Cognitive Radio Networks," IEEE Commun. Mag., vol. 46, pp. 50–55, Apr. 2008.
5. H. Khalife, N. Malouch, S. Fdida, "Multihop cognitive radio networks: to route or not to route," IEEE Network, vol. 23, no. 4, pp. 20-25, 2009.
6. Y.-C. Liang et al., "Sensing-Throughput Trade-off for Cognitive Radio Networks, "IEEE Trans. Wireless Commun., vol. 7, pp. 1326–37 ,April 2008.
7. P. K. Visscher, "How Self-Organization Evolves," Nature, vol. 421, pp. 799–800 Feb.2003.