INFORMATION DISSEMINATION IN NEXT GENERATION NETWORKS: OPPORTUNITIES AND CHALLENGES

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Abstract: The availability of up-to-date information to people is an important requirement in many scenarios such as companies and civil institutions. In this regard, most establishments either use websites, emails or notice boards. However, in developing countries internet access is not available to many people on their mobile devices because of high costs. Moreover, having an electronic notice board requires that people need to go to one place to get the required information thus resulting in long queues as well as inconvenience on the part of the person. In this paper, we propose a system that can be used to provide up-to-date information to students or employees of any institute using latest and most common technology. This is an automated system that utilizes GSM technology along with an embedded server. The system is designed to work independently without the need of any human operator and when an student or employee needs any information, they will need to send an SMS to this system which will respond with the information required by user. The system also has the facility to inform students or employees about any instant update via SMS and it can also be remotely updated with new information. Furthermore, the system has the capability to store previous notifications which have been sent and is designed to work 24/7.

Keywords: *ARM-7,GSM/GPRS, Ethernet, PC,LCD Display.*

I. INTRODUCTION

Information dissemination among employees of a company is necessary for management and administration purposes. Consequently this has been of interest for system designers in a diverse set of applications ranging from development of generalized chat bots [1] or forming an online help assistant as in [2]. An information exchange tool for knowledge transfer can exist in two ways [3], the first is performed in the form of a question answer system [4] in which a person readily answers all the queries that one might have. Alternately, there could also be a social forum for information transfer [5]. In companies and educational establishments, information is usually disseminated by means of information counters and notice boards. However, with such organizations usually having personnel spread over a large area, it is not always possible for every employee to be able to get access to the most up-to-date information. Educational institutions also have a similar situation wherein students can be present in any part of the campus and might miss important updates such as rescheduling of classes etc. Furthermore, students and employees might not be able to know important information in-time for it to be useful to them as they might not be able to pass through those notice boards regularly. Paper based notice boards are especially cumbersome to maintain due to many people posting information with no

mechanism for removing them [6]. It would therefore be beneficial as well as convenient for there to be some mechanism by which users could be updated immediately about a change in normal routine or be able to access the most current information at their will.

II. HARDWARE SYSTEM

Micro controller: This section forms the control unit of the whole project. This section basically consists of a Microcontroller with its associated circuitry like Crystal with capacitors, Reset circuitry, Pull up resistors (if needed) and so on. The Microcontroller forms the heart of the project because it controls the devices being interfaced and communicates with the devices according to the program being written.

ARM7TDMI: ARM is the abbreviation of Advanced RISC Machines, it is the name of a class of processors, and is the name of a kind technology too. The RISC instruction set, and related decode mechanism are much simpler than those of Complex Instruction Set Computer (CISC) designs.

Liquid-crystal display (**LCD**) is a flat panel display, electronic visual display that uses the light modulation properties of liquid crystals. Liquid crystals do not emit light directly. LCDs are available to display arbitrary images or fixed images which can be displayed or hidden, such as preset words, digits, and 7-segment displays as in a digital clock.

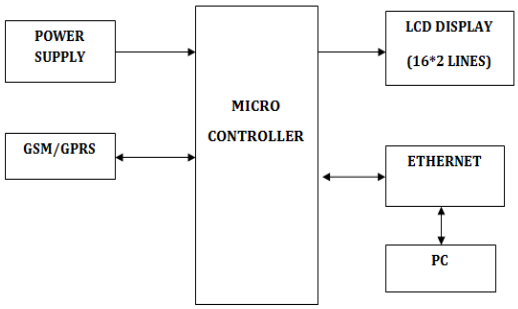

Fig 1: Block diagram

The solution to this is to use technology and make technology responsible to answer all the queries asked by people. Similar work has already been done by many people around the world. The best tool is Cell phones, which are available to almost everyone and that is connectable to internet to download latest Information.

The system is designed to work independently without the need of any human operator and when a student or employee needs any information, they will need to send an SMS to this system which will respond with the information required by user. The system also has the facility to inform students or employees about any instant update via SMS and it can also be remotely updated with new information.

The major advantage of this system is the use of GSM for communication, therefore the user does not need to be present in institute, and he/she can get information from anywhere and at any time not necessarily during campus timings.

III. SYSTEM HARDWARE FEATURES

GPRS:

GPRS (general packet radio service) is a packet-based data bearer service for wireless communication services that is delivered as a network overlay for GSM, CDMA and TDMA (ANSI-I36) networks. GPRS applies a packet radio principle to transfer user data packets in an efficient way between GSM mobile stations and external packet data networks. Packet switching is where data is split into packets that are transmitted separately and then reassembled at the receiving end. GPRS supports the world's leading packet-based Internet communication

protocols, Internet protocol (IP) and X.25, a protocol that is used mainly in Europe. GPRS enables any existing IP or X.25 application to operate over a GSM cellular connection. Cellular networks with GPRS capabilities are wireless extensions of the Internet and X.25 networks.

Fig 2: GPRS module

Ethernet:

Ethernet is a family of computer networking technologies for local area networks (LANs) and metropolitan area networks (MANs). It was commercially introduced in 1980 and first standardized in 1983 as IEEE 802.3, and has since been refined to support higher bit rates and longer link distances. Over time, Ethernet has largely replaced competing wired LAN technologies such as token ring, FDDI, and ARCNET. The primary alternative for contemporary LANs is not a wired standard, but instead a wireless LAN standardized as IEEE 802.11 and also known as Wi-Fi. The Ethernet standards comprise several wiring and signaling variants of the OSI physical layer in use with Ethernet. The original 10BASE5 Ethernet uses coaxial cable as a shared medium, while the newer Ethernet variants use twisted pair and fiber optic links in conjunction with hubs or switches. Over the course of its history, Ethernet data transfer rates have been increased from the original 2.94 megabits per second (Mbit/s) to the latest 100 gigabits per second (Gbit/s), with 400 Gbit/s. Systems communicating over Ethernet divide a stream of data into shorter pieces called frames. Each frame contains source and destination addresses and error-checking data so that damaged data can be detected and re-transmitted. As per the OSI model, Ethernet provides services up to and including the data link layer.

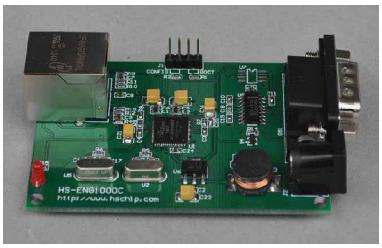

Fig 3: Ethernet module

IV. CONCLUSION

In this paper, an automated information desk system for universities was proposed and implemented. The system consists of a small embedded system, a GSM module and an Ethernet shield to perform communication with the outside world and an SD card for storage of information to be distributed. The system was shown to work well when requiring information remotely on a mobile device via SMS.

V. REFERENCES

[1] S. Ghose and J.J. Barua, “Toward the implementation of a topic specific dialogue based natural language chatbot as an undergraduate advisor”, 2013 International Conference on Informatics, Electronics & Vision (ICIEV), 2013, pp. 1-5

[2] Weissenborn. and F.J. Sanchez, “TekPAC (Technical Electronic Knowledge Personal Assistant Capsule)”, 2001 IEEE International Semiconductor Manufacturing Symposium, 2001, pp. 29-31

[3] R. P. Schumaker, Ginsburg, M., Chen H., Liu Y.,"An evaluation of the chat and knowledge delivery components of a low-level dialog system:The AZ-ALICE experiment", Decision Support Systems, 2007

[4] J. Chai and J.Lin, "The role of natural language conversational interface in online sales: a case study," International Journal of
Speech Technology., Nov. 2001, vol. 4, pp. 285-295

[5] Schultz, T, "Mass media and the concept of interactivity: An exploratory study of online forums and reader email", Media, culture & society, vol. *22*, issue. 2, pp.205-221.

[6] B.Adkins, E.Grant "Backpackers as a community of strangers: the interaction order of an online backpacker notice board". Qualitative Sociology Review, vol. 3, issue. 2, 2007.

[7] Kaisheng Zhang and Jinhao Liu, "Design Of Home Intelligent Electronic Assistant System Based on Embedded Module of 3C44B0X", 2nd IEEE International Conference on Computer Science and Information Technology, 2009 (ICCSIT 2009),
2009, pp. 27-29

[8] WALLACE, Richard. *The elements of AIML style*. Alice AI Foundation, 2003 [9] Mengawade, Tejas et Mogal, Mayur, "SMS Based Student Services Administration", Global Journal of Computer Science and Technology, vol. 13, no 1, 2013

[10] Semakuwa, Senzota K., Rashid, Florence U., Fungo, Debora C., *et al.* "Migrant from on wall notice-board to an online
announcement displaying system for tanzanian, college's",2014.