1. **LITERATURE REVIEW:**

Goodman, D.J. (1) has worked on various Trends in cellular and cordless communications and suggested four second generation networks. In the framework of these issues, 4 networks are described. Turnell, D.J.; Deep, G.S.; Freire, R.C.S.(2) designed a low-cost water detection method for furrow irrigation control in which a computer monitors the water advance along the furrows during the initial phase of the irrigation. The detection of water is done by the change in capacitance of a wire element.

Moon, Y.S.; Wong, K.; Ho, K.S. (3) has designed a prototype of a novel GSM mobile phone based automobile security system. Experimental results show that the approach is feasible even for the low bandwidth of the GSM network. Wall, R.W. (4) suggested Sprinklers and power lines for implementing precision agriculture for farm management requires improved sensing and control. It is also shown how to reduce operating costs for automating existing agricultural irrigation controls View.

Askarian, Abyaneh, H.; Al-Dabbagh, M.; Kazemi, Karegar, H.; Hesameddin, Hossein Sadeghi, S.; Abul Jabbar Khan, R. (5) have suggested a New Optimal Approach for Coordination of Overcurrent Relays in Interconnected Power Systems. The authors also make recommendations on how calibrations of reference measuring systems should be performed. Alessandro Andreadis, Giuliano Benelli, Giovanni Giambene, and Bernardo Marzucchi (6) have suggested A Performance Evaluation Approach for GSM-Based Information Services which focuses on the Wireless Application Protocol (WAP) for providing mobile information services, as envisaged by the Personalized Access to Local Information and Services for Tourists (PALIO) project.

Hui-Nien Hung, Yi-Bing Lin, Fellow, IEEE, Ming-Kun Lu, and Nan-Fu Peng (7) developed A Statistic Approach for Deriving the Short Message Transmission Delay Distributions which analyzes the short message transmission delays based on 40 000 measured data collected from commercial operation. Al-Ali A. R., & Rousan M., Mohandes M.,(8) have designed GSM based distribution transformer monitoring system. The system can be also controlled and monitored from anywhere by using telephone line.

Chakravorty R., Clark A., and Ian Pratt,(9) show what causes the web and its underlying transport protocol TCP to underperform in a GPRS wide-area wireless environment. They examine why certain GPRS network characteristics interact badly with TCP to yield problems such as: link underutilization for short-lived flows, excess queueing for
long-lived flows, ACK compression, poor loss recovery, and gross unfairness between competing flows. Carlos H. S., Mario Pascual Carrasco, González de Mingo, Adolfo Muñoz C., Joaquin Máquez Montes, Luis Sosa Martín, Miguel A., Ignacio Fernández Lozano, and José Luis Monteagudo, (10) provide a platform built around three information entities (patient, health-care_agent, and central_station) which was designed to enable patients with chronic heart disease to complete specifically defined protocols for out-of-hospital follow-up and monitoring. They were provided with portable recording equipment and a cellular phone that supported data transmission [electrocardiogram (ECG)] and wireless application protocol (WAP).

Chakravorty R., Katti S., Ian Pratt, and Crowcroft J., (11) they examine the performance of protocols such as transmission control protocol (TCP) over GPRS. They present a design and implementation of a transparent TCP proxy that mitigates many of these problems without requiring any changes to the TCP implementations in either mobile or fixed-wire end systems. Kalmanek C., Murray J., and Rice C., Moskal A., (12) describe an implementation of a network based architecture for seamless mobility services that supports the full range of applications - voice, data, video, and messaging - using bimode devices that interface to both Global System for Mobile Communications (GSM) and Wireless Fidelity (Wi-Fi) networks. This solution provides advanced functionality to existing cellular devices, while providing a solid migration path to full IP-based multimedia services.

Flammini A., Marioli D., Sisinni E., and Taroni A., (13) describes a low-cost standard solution for environmental monitoring. They propose realizing of a “local” cellular network exploiting a free and standard technology like “Digital Enhanced Cordless Telecommunications” (DECT), typically used for cordless handsets. Chia-Hung Lien, Ying-Wen Bai, and Ming-Bo Lin, (14) describe the Wireless Power-Controlled Outlet Module (WPCOM) with a scalable mechanism for home power management which they have developed. The WPCOM integrates the multiple AC power sockets and a simple low-power microcontroller into a power outlet to switch the power of the sockets ON/OFF and to measure the power consumption of plugged electric home appliances.

Yanbo Zhao and Zhaohui Ye, (15) present the design and implementation of a low cost, low power consumption, and GSM/GPRS (Global System for Mobile Communication /General Packet Radio Service) based wireless home security system. The system can response rapidly to alarm incidents and has a friendly user interface including a LCD. Christoph K. LaDue, Vitaliy V. Sapochnykov, and Kurt S. Fienberg, (16) introduces a novel approach to data communication over the Global System for Mobile Communications (GSM) voice
channel. It is based on the concept of “symbols”—a set of predefined signals with finite bandwidths. Data are encoded into the symbols, and the symbols are voice coded as they were speech, modulated into the GSM signal, sent over the air, GSM demodulated, voice decoded, and converted back to data.

Cunrong Li, Chunwei Song, Lili Lai, (17) developed a hydrologic remote measurement system based on the analysis of the present situation of flood prevention of the Coalmining industry, to meet the urgent demands. By make full use of the telecommunication network of the GSM(Global System Mobile Communication), the system could fulfill the measuring task with a wireless way. Tahmina Begum, Hossain M.S., Uddin M.B., and Chowdhury M.S., (18) mainly focus on the controlling of home appliances remotely when the user is away from the place. The system is SMS based and uses wireless technology. This system provides ideal solution to the problems faced by home owners in daily life.

Liu Pu, (19) describes a remote control system via Internet and GSM SMS, which controls smart home network in wired access mode and wireless communication mode, respectively. Although SMS is widely used for a variety of applications, it is not suitable for the purpose of remote control because it suffers from transmission delay, lose and lacks of confidentiality. Luis Ruiz-Garcia, Loredana Lunadei, Pilar Barreiro, and Jose Ignacio Robla (20) focus on WSN (Wireless Sensor Networks) and RFID (Radio Frequency Identification), presenting the different systems available, recent developments and examples of applications, including ZigBee based WSN and passive, semi-passive and active RFID.

Kostas P., (21) provide a review the evolution from simple cell phones toward the feature-rich mobile networked devices we have come to expect from manufacturers, and explains the factors that have led to stagnation in operational time. They then turn their attention to the multi-access nature of modern mobile devices and the respective implications for power management. Vijayaraj A., Saravanan R., (22) suggest in the system the central EB office has immediate access to all consumer homes in a locality with the help of an RF system. The EB meter present in each house is connected by wireless network with the EB office which periodically gets updates from the meter. The advantages of the proposed system make the existing system incompetent.

Shinghal K., Dr. NOOR A., Dr. Srivastava N., (23) report on the application of WSN technology to improve potato crop production. By monitoring and understanding individual crop and its requirements, farmers can potentially identify the various fertilizers, irrigation and other requirements. They also present an irrigation management model is given to estimate agricultural parameters using mathematical calculations with specific example of potato crop.
Dawy Z., Husseini A., Yaacoub E., and Al-Kanj L., (24) present work on a lab course composed of 10 experiments that cover the different phases of RNPO for various state-of-the-art wireless technologies such as GSM, UMTS, and WiMAX. Each experiment constitutes a complete entity including the necessary theoretical background and references, the lab tasks based on real-world scenarios, and a research component consisting of general questions.

Zheng wenzheng, (25) proposes a design of a wireless power meter system based on GSM network; the main communication way is GPRS and secondary SMS. The user can choose the different transfer modules based on different demands and can choose the Local network, dial network, ISDN, ADSL to connect into network. Saeed U., Syed S., Zahoor Qazi S., Khan N., Khan A., Babar M., (26) discuss the most advanced idea of Domotics, in which the comprehensive controlling and monitoring of all home appliances are done by simple instant message service.

Khandare M. S., Mahajan A., (27) designed a SMS based technology and uses a wireless based system like Wi-Fi to revolutionized the standards. The system is ideal & costeffective. Faizan Farid, Rehan M., Faizan F., Tahir M., (28) provide an objective of developing a home automation and security system which can be controlled and monitored remotely using any telephone line. The system can also be implemented for security purposes in banks or at home.

Rehman Aqeel, Shaikh Zubair A., Humaira Yousuf, Nawaz F., Kirmani M., and Sara Kiran, (29) have presented the crop irrigation control to better utilize water resource which is getting scarce. The one of the major hindrances on the way of WSAN adaptation in the third world countries like Pakistan is the factor of hardware/system cost. To cope up with cost factor, there is a need of the indigenous development of sensor and actuator motes. Atta R., Boutraa T., and Akhkha Abdellah, (30) built in this paper a new sensors network for monitoring the soil moisture and, in a two way wireless communication, decision made for water irrigation will be transmitted to the nodes. The proposed system was proven to be cheap, reliable and simple to use.

Sheikh Shoeb S., Prof. Sharma S., (31) presents an implementation methodology for a wireless automatic meter reading system (WAMRS) incorporating the widely used GSM network. Also they suggest a method where we utilize telecommunication systems for automated transmission of data to facilitate bill generation at the server end and also to the customer via SMS, Email. Mahir Dursun, and Semih Ozden, (32) describe an application of a wireless sensor network for low-cost wireless controlled irrigation solution and real time
monitoring of water content of soil. The designed system was applied to an area of 8 decares in a venue located in central Anatolia for controlling drip irrigation of dwarf cherry trees.

Thomas H., Bruce M., (33) has invented an Intelligent environmental sensor for irrigation systems for which he got an US Patent:7962245, in 2011. The invention provides a regulator system for regulating the operation of an irrigation system which is responsive to user programmed information. It has a control element for issuing watering control signals to an irrigation system. Venkataramu L., (34) has invented an Intelligent irrigation rain sensor for which he got an US Patent:7966153 in 2011. It is for use in an irrigation system comprises a rain sensor unit and a sensor control unit. The rain sensor unit has a rain catcher reservoir with an open top for receiving rainwater with an internal volume for holding water and tapers into a funnel.

Rael, (35) has invented a System and method for irrigation controller for which he got an US Patent:7957843 in 2011. A method of controlling the duration of irrigation is described, comprising compiling a database that includes information relating to historical evapotranspiration rates for a plurality of sectors (preferably identified by zip code) located within a geographical area. Mark M., Barbara E., Dean C., Randall A., Malcolm N.,(36) have invented a Wireless extension to an irrigation control system and related methods, for which he got an US Patent no. 8010238 in 2011. They implemented an irrigation control system includes a transmitter unit including a controller and having a connector to be coupled to an irrigation controller having station actuation output connectors. The controller is configured to receive an indication that the irrigation controller has activated an irrigation station, and is also configured to cause the transmitter unit to transmit a wireless activation signal responsive to the indication.

Daniel Joseph, (37) has invented a System and method for wireless irrigation utilizing a centralized control server and field module matrix, for which he got an US patent No.: 8024075 in 2011. This invention is a centralized server-based system containing a database with relevant information regarding features, parameters, and characteristics of a particular irrigation system, which utilizes proprietary irrigation software to control a plurality of field modules, at one or more remote locations, via a network bridge adapter.

Vishwakarma Rajeev G., Chou Vijay, Dhary, (38) propose a system which shows, how mobile technology can benefit millions of farmers in rural India by providing a solution for the irrigation problems caused by intermittent electrical power supply. Vijayakumar S., Rosario N.J., (39) projected, the sensor motes have several external sensors namely leaf wetness, soil
moisture, soil pH, atmospheric pressure sensors attached to it. Based on the value of soil moisture sensor the mote triggers the water sprinkler during the period of water scarcity. Once the field is sprinkled with adequate water, the water sprinkler is switched off.

Arbab Waheed Ahmad, Naeem Jan, Chankil Lee, (40) provide an implementation of a novel security and control system for home automation is presented. The proposed system consists of a control console interfaced with different sensors using ZigBee. Suspected activities are conveyed to remote user through SMS (Short Message Service) or Call using GSM (Global System for Mobile communication) technology.