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Titles with Abstracts 2017-18
Patient health monitoring technology presents great potential for future healthcare applications and Radio Frequency (RF) communication is the most popular medium for its implementation. This paper presents a static indoor patient monitoring scheme using uplink Visible Light Communication (VLC) suitable for hospital environments. VLC is considered instead of RF communication because of health concerns regarding continuous RF exposure to patients for health monitoring. The proposed scheme is designed for transmitting uplink patient data using VLC through On-Off Keying (OOK) modulation. Experiments were conducted with several body-sensors data transmitted using predefined headers. The experiment results show that the proposed VLC based patient monitoring scheme can offer accurate monitoring data transmission with minimal interference with the help of space diversity.

Many devices and solutions for remote electrocardiogram (ECG) monitoring have been proposed in the literature. These solutions typically have a large marginal cost per added sensor and are not seamlessly integrated with other smart home solutions. Here, we propose an ECG remote monitoring system that is dedicated to non-technical users in need of long-term health monitoring in residential environments and is integrated in a broader Internet-of-Things (IoT) infrastructure. Our prototype consists of a complete vertical solution with a series of advantages with respect to the state of the art, considering both the prototypes with integrated front end and prototypes realized with off-the-shelf components: 1) ECG prototype sensors with record-low energy per effective number of quantized levels; 2) an architecture providing low marginal cost per added sensor/user; and 3) the possibility of seamless integration with other smart home systems through a single IoT infrastructure.
Health monitoring systems have rapidly evolved recently, and smart systems have been proposed to monitor patient current health conditions, in our proposed and implemented system, we focus on monitoring the patient's blood pressure, and his body temperature. Based on last decade statistics of medical records, death rates due to hypertensive heart disease, shows that the blood pressure is a crucial risk factor for atherosclerosis and ischemic heart diseases; thus, preventive measures should be taken against high blood pressure which provide the ability to track, trace and save patient's life at appropriate time is an essential need for mankind. Nowadays, Globalization demands Smart cities, which involves many attributes and services, such as government services, Intelligent Transportation Systems (ITS), energy, health care, water and waste. This paper proposes a system architecture for smart healthcare based on GSM and GPS technologies. The objective of this work is providing an effective application for Real Time Health Monitoring and Tracking. The system will track, trace, monitor patients and facilitate taking care of their health; so efficient medical services could be provided at appropriate time. By using specific sensors, the data will be captured and compared with a configurable threshold via microcontroller which is defined by a specialized doctor who follows the patient; in any case of emergency a short message service (SMS) will be sent to the Doctor's mobile number along with the measured values through GSM module. Furthermore, the GPS provides the position information of the monitored person who is under surveillance all the time. Moreover, the paper demonstrates the feasibility of realizing a complete end-to-end smart health system responding to the real health system design requirements by taking in consideration wider vital human health parameters such as respiration rate, nerves signs ... etc. The system will be able to bridge the gap between patients - in dramatic health change occasions- and health entities who response and take actions in real time fashion.

Location-Aware Speakers for the Virtual Reality Environments

This paper presents location-aware speakers for the immersive virtual reality environments as well as conventional surround sound systems. The surround sound system generally requires multiple speakers fixed in specific positions and connected to dedicate audio jack holes. In this paper, we propose wireless speakers that can aware their locations and dedicated sound channels without troublesome installations. The proposed speakers use the Internet of things devices by combining a Raspberry Pi and a beacon to each speaker, which enable smart and connected applications. Each speaker estimates distances to other speakers from received signal strength indication of beacons with bluetooth low energy signals. By analyzing the relative distances between speakers, we detect the speaker locations in various speaker setups. We experimented our method with three sound system formats in various sizes and analyzed the accuracy of the location detection.
ETPL EMB- 005
A pulse measurement and data management system based on Arduino platform and Android device.

A prototype of pulse measurement and data management system is built on Arduino platform and Android device. It is provided with functions of pulse measurement, data storage and share in local device and online cloud server. Among the system, first a smart pulse sensing module with a Bluetooth interface is designed to measure pulse rate and peak value. Pulse data with time stamp is then sent to Android device through Bluetooth. A data management application is developed for Android device, which can receive pulse data from sensing module and further upload to online cloud server.

ETPL EMB- 006
Smart Real-Time Healthcare Monitoring and Tracking System using GSM/GPS Technologies.

Health monitoring systems have rapidly evolved recently, and smart systems have been proposed to monitor patient current health conditions, in our proposed and implemented system, we focus on monitoring the patient's blood pressure, and his body temperature. Based on last decade statistics of medical records, death rates due to hypertensive heart disease, shows that the blood pressure is a crucial risk factor for atherosclerosis and ischemic heart diseases; thus, preventive measures should be taken against high blood pressure which provide the ability to track, trace and save patient's life at appropriate time is an essential need for mankind. Nowadays, Globalization demands Smart cities, which involves many attributes and services, such as government services, Intelligent Transportation Systems (ITS), energy, health care, water and waste. This paper proposes a system architecture for smart healthcare based on GSM and GPS technologies. The objective of this work is providing an effective application for Real Time Health Monitoring and Tracking. The system will track, trace, monitor patients and facilitate taking care of their health; so efficient medical services could be provided at appropriate time. By Using specific sensors, the data will be captured and compared with a configurable threshold via microcontroller which is defined by a specialized doctor who follows the patient; in any case of emergency a short message service (SMS) will be sent to the Doctor's mobile number along with the measured values through GSM module. Furthermore, the GPS provides the position information of the monitored person who is under surveillance all the time. Moreover, the paper demonstrates the feasibility of realizing a complete end-to-end smart health system responding to the real health system design requirements by taking in consideration wider vital human health parameters such as respiration rate, nerves signs ... etc. The system will be able to bridge the gap between patients - in dramatic health change occasions- and health entities who response and take actions in real time fashion.
The development of telemonitoring via wireless body area networks (WBANs) is an evolving direction in personalized medicine and home-based mobile health. A WBAN consists of small, intelligent medical sensors which collect physiological parameters such as electrocardiogram, electroencephalography, and blood pressure. The recorded physiological signals are sent to a coordinator via wireless technologies, and are then transmitted to a healthcare monitoring center. One of the most widely used wireless technologies in WBANs is ZigBee because it is targeted at applications that require a low data rate and long battery life. However, ZigBee-based WBANs face severe interference problems in the presence of WiFi networks. This problem is caused by the fact that most ZigBee channels overlap with WiFi channels, severely affecting the ability of healthcare monitoring systems to guarantee reliable delivery of physiological signals. To solve this problem, we have developed an algorithm that controls the load in WiFi networks to guarantee the delay requirement for physiological signals, especially for emergency messages, in environments with coexistence of ZigBee-based WBAN and WiFi. Since WiFi applications generate traffic with different delay requirements, we focus only on WiFi traffic that does not have stringent timing requirements. In this paper, therefore, we propose an adaptive load control algorithm for ZigBee-based WBAN/WiFi coexistence environments, with the aim of guaranteeing that the delay experienced by ZigBee sensors does not exceed a maximally tolerable period of time. Simulation results show that our proposed algorithm guarantees.

With the progress and development of national economy as well as power system, reliability and safety issues of power system have been more important. Development of distribution Transformer Health Monitoring System (THMS) has been done in that reason. Distribution transformer is the most vital asset in any electrical distribution network and therefore it needs special care and attention. This THMS can monitor the health status of the distribution transformer in real time aspect. As a large number of transformers are distributed over a wide area in present electric systems, it's difficult to monitor the condition manually of every single transformer. So automatic data acquisition and transformer condition monitoring has been an important issue. This project presents design and implementation of a mobile embedded system to monitor load currents, over voltage, transformer oil level and oil temperature. The implementation on-line monitoring system integrates Global Service Mobile (GSM) Modem, with single chip microcontroller and sensors. It is installed at the distribution transformer site. The output values of sensors are processed and recorded in the system memory. System programmed with some predefined instructions to check abnormal conditions. If there is any abnormality on the system, the GSM module will send SMS (Short Message Service) messages to designated mobile telephones containing information about the abnormality according to the aforesaid predefined instructions.
This paper presents the design and prototype of a wireless health monitoring system using mobile phone accessories. We focus on measuring real time Electrocardiogram (ECG) and Heart rate monitoring using a smartphone case. With the increasing number of cardiac patients worldwide, this design can be used for early detection of heart diseases. Unlike most of the existing methods that use an optical sensor to monitor heart rate, our approach is to measure real time ECG with dry electrodes placed on smartphone case. The collected ECG signal can be stored and analyzed in real time through a smartphone application for prognosis and diagnosis. The proposed hardware system consists of a single chip microcontroller (RFduino) embedded with Bluetooth low energy (BLE), hence miniaturizing the size and prolonging battery life. The system called "Smart Case" has been tested in a lab environment. We also designed a 3D printed smartphone case to validate the feasibility of the system. The results demonstrated that the proposed system could be comparable to medical grade devices.

We present a low-power (382) body area network receiver operating in the 900 MHz band. The wideband FSK receiver supports bit rates up to 625 kbps. To save power, the power consuming phase-locked-loop (PLL) is replaced by an energy efficient digital automatic frequency control (AFC) loop. The AFC acts as a low-bandwidth frequency-locked-loop (FLL), using the FSK demodulator as frequency detector; the measured frequency offset is fed back to the on-chip digitally controlled oscillator. To further decrease the power consumption, the LNA is removed, the passive mixer being the first circuit in the receiver front-end. The mixer-first topology increases the linearity compared to injectionlocked and envelope detector based receivers. Additionally, analytical passive mixer transducer power gain and noise figure models are presented which are used to obtain an optimal mixer-first design. We achieve a -81 dBm sensitivity at a bit rate of 12.5 kbps.
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<th>ETPL EMB - 011</th>
<th>The Design of Building Fire Monitoring System Based on ZigBee-Wi-Fi Networks.</th>
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<td>With the rapid development of wireless communication technology, people's life has undergone great changes. In recent years, the comfort and safety of the building environment have become a universal concern. However, building fire is the greatest threat to building safety. In consideration of the current issues on building security, the design applies the important part, the wireless sensor network technology to building fire safety monitoring system and establishes the wireless sensor network by using ZigBee technology and ZigBee-WiFi gateway which transforms ZigBee network into WiFi network, In addition, taking advantage of the ZigBee wireless sensor network locates a fire place so that the fire information is uploaded to the handheld terminal and the building security personnel work out the retreat and rescue plan in time. This paper provides a new solution for building fire monitoring system.</td>
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<td>This paper gives the design and implementation of embedded system for voice recognition in automatic vehicle driving using Arduino Uno controller for physically challenged people. Arduino Uno has features such as low power consuming, low heat release than its predecessor (AT mega) and based on AT mega architecture, also it is a quad core processor and the system uses Google’s speech API for the conversion of speech to text, which has the dictionary of phoneme for more than 60k words and many languages are supported. We can able to control the 4 vehicle model using Arduino Uno with Android application.</td>
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Home automation technology is becoming as synonymous with sustainability as it is with convenience. Incorporating smart home technology into a new or existing structure makes it easier to reduce energy consumption by WSN. The main role of the sensor network that senses physical parameters estimating user behavior for future periods and adjusting prediction in real time. Wireless sensor networks have critical applications in the scientific, medical, commercial, and military domains the main aim of this project is to reduce the power consumption. It is possible to save energy when installing various products. Simple functions such as temperature sensors and detectors integrated into a relatively simple home automation system can save hours of wasted energy in both residential and commercial applications. Wireless home automation networks comprise wireless embedded sensors and actuators that enable monitoring and control applications for home user comfort and efficient management. Increased demands on implementation of wireless sensor networks in automation praxis result in relatively new wireless standard – ZigBee. This article surveys the main current and emerging solutions that are suitable for wireless home automation networks.

This paper describes a low cost and holistic approach to the water quality monitoring problem for drinking water distribution systems as well as for consumer sites. Our approach is to develop sensor nodes for real time and in - pipe monitoring, assessment of water quality on the fly and to calculate the amount of water delivered. The main sensor node consists of several in pipe electrochemical and optical sensors and emphasis is given on low cost, lightweight implementation, and reliable long time operation. Such implementation is suitable for large scale deployments enabling a sensor network approach for providing spatiotemporally rich data to water consumers, water companies, and authorities. Based on selected parameters, a sensor array is developed along with several microsystems for analog signal conditioning, processing, logging, and remote presentation of data. Testing are performed to estimate and validate these calculated contamination events of various concentrations of Escherichia coli bacteria and heavy metals (arsenic). Experimental results indicate that this inexpensive system is capable of detecting these high impact contaminants at fairly low concentrations.
In this paper, we propose a robust and accurate indoor localization and tracking system using smartphone built-in inertial measurement unit (IMU) sensors, WiFi received signal strength measurements and opportunistic iBeacon corrections based on particle filter. We utilize Pedestrian Dead Reckoning (PDR) approach which leverages smartphone equipped accelerometers, gyroscope and magnetometer to estimate the walking distance and direction of user. The position estimated by WiFi fingerprinting based approach is fused with PDR to reduce its drifting error. Since the number of WiFi routers is usually limited for localization in large-scale indoor environment, we employ the emerging iBeacon technology to occasionally correct the drifting error of PDR in poor WiFi coverage area. Extensive experiments have been conducted and verified the superiority of the proposed system in terms of localization accuracy and robustness.

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Cooperation of the multi-robots is an upcoming appealing area of research in the field of robotics. In this paper, two arduino based mobile robots are carrying a stick by cooperation towards their goal avoiding obstacles. The path planning algorithm is designed with the help of Artificial Bee Colony Optimization (ABCO) algorithm which chooses the optimized path by minimizing the distance between the robots and maximizing the distance from the obstacles. The ultrasonic sensors, encoder, 3-axis compass and XBee module are embedded in the robot to detect obstacle in the path of the robots, the distance travelled by the robot, calculate the direction (coordinate) of the robot and to communicate with other robots respectively. We have also designed our algorithm with the help of differential evolutionary (DE) algorithm. Analyzing the performance of ABCO and DE algorithms, it is observed that ABCO outperforms DE in real-robot experiment with respect to distance metric.
This paper describes the system architecture for a navigation tool for visually impaired persons by GSM Communication. The major parts are: a multi-sensory system (comprising stereo vision, acoustic range finding and movement sensors), a mapper, a warning system and a tactile human-machine interface. The sensory parts are described in more detail, and the first experimental results are presented.

This paper is concerned with the problem of decision making in systems that assist drivers in avoiding collisions. An important aspect of these systems is not only assisting the driver when needed but also not disturbing the driver with unnecessary interventions. Aimed at improving both of these properties, a probabilistic framework is presented for jointly evaluating the driver acceptance of an intervention and the necessity thereof to automatically avoid a collision. The intervention acceptance is modeled as high if it estimated that the driver judges the situation as critical, based on the driver’s observations and predictions of the traffic situation. One advantage with the proposed framework is that interventions can be initiated at an earlier stage when the estimated driver acceptance is high. Using a simplified driver model, the framework is applied to a few different types of collision scenarios. The results show that the framework has appealing properties, both with respect to increasing the system benefit and to decreasing the risk of unnecessary interventions.
Visible Light Communication (VLC) system based on white LEDs has emerged as an eco-friendly IT green technology using THz visible light spectrum in provision of both lighting and wireless access. Installation of new communication cables between other fixed network (PC, Set-Top Box, fiber networks, etc.) and LED lights is expensive, disruptive and time consuming process. Meanwhile, the power-line communications (PLC) can make it possible to use the power lines as the medium of communications. The utilities of home networking over power-lines can take advantage of the existing wiring infrastructure for provision of illumination cum communication. The integrated system of VLC and PLC is a smart way of fulfilling the premise of broadband access for home networking, while providing efficient and low-cost lighting. To achieve the higher data rates (MHz), PLC channel is simulated using DMT-QAM modulation scheme. Visible Light Communication (Li-Fi) offers a new transmission medium for high speed communications. This Edinburgh technology significantly increases the data rate capacity of optical wireless communication, while re-using LED lighting infrastructure as the transmission channel. This Edinburgh technology has the ability to convert a signal transmitted over an LED based communication link from a bipolar signal into a unipolar signal. By applying a pulse shaping filter to the bipolar signal, and then transforming the negative values of the pulse shaped bipolar signal into a unipolar signal, the net effect is a significant enhancement in data rate transmission. The method can be readily integrated into LED lighting infrastructure, using low cost front end devices to implement a range of Li-Fi applications.

Falls in the elderly have always been a serious medical and social problem. To detect and predict falls, a hidden Markov model (HMM)-based method using tri-axial accelerations of human body is proposed. A wearable motion detection device using tri-axial accelerometer is designed and realized, which can detect and predict falls based on tri-axial acceleration of human upper trunk. The acceleration time series (ATS) extracted from human motion processes are used to describe human motion features, and the ATS extracted from human fall courses but before the collision are used to train HMM so as to build a random process mathematical model. Thus, the outputs of HMM, which express the marching degrees of input ATS and HMM, can be used to evaluate the risks to fall. The experiment results show that fall events can be predicted 200-400 ms ahead the occurrence of collisions, and distinguished from other daily life activities with an accuracy of 100%.
Fall detection is a major challenge in the public healthcare domain, especially for the elderly as the decline of their physical fitness, and timely and reliable surveillance is necessary to mitigate the negative effects of falls. This paper develops a novel fall detection system based on a wearable device. The system monitors the movements of human body, recognizes a fall from normal daily activities by an effective quaternion algorithm, and automatically sends request for help to the caregivers with the patient’s location.

The main goal of this paper is to design and implement a bank locker security system based on RFID and GSM technology which can be organized in bank, secured offices and homes. In this system only authentic person can be recovered money from bank locker. We have implemented a bank locker security system based on RFID and GSM technology containing door locking system using RFID and GSM which can activate, authenticate, and validate the user and unlock the door in real time for bank locker secure access. The main advantage of using passive RFID and GSM is more secure than other systems. This system consists of microcontroller, RFID reader, GSM modem, keyboard, and LCD, in this system The RFID reader reads the id number from passive tag and send to the microcontroller, if the id number is valid then microcontroller send the SMS request to the authenticated person mobile number, for the original password to open the bank locker, if the person send the password to the microcontroller, which will verify the passwords entered by the key board and received from authenticated mobile phone. If these two passwords are matched the locker will be opened otherwise it will be remain in locked position, this system is more secure than other systems because two passwords required for verification. This system also creates a log containing check-in and check-out of each user along with basic information of user.
To avoid all such situations we are going to implement a project called Garbage collection bin overflow indicator using GSM technology. In this project we are going to place a weight sensor under the dustbin. When the weight reaches to the threshold value, a SMS will be sent to the respective Municipal / Government authority person. Then that person can send the collection vehicle to collect the full garbage bins or dustbins. We have observed that the municipal officer or the government authorized person will monitor the status of dustbin. Or generally we see that they have a regular schedule of picking up these garbage bins or dustbins. This schedule varies as per the population of that place. It can be once in a day or twice in a day or in some cases once in two days. However we see that in case there is some festival or some function, lots of garbage material is generated by people in that particular area. In such cases the garbage dustbin gets immediately full and then it overflows which creates many problems. So in situations, with help of our project the government authority person can get SMS immediately. So they will get SMS before their periodic interval visit of picking up the dustbin. Then they can go and pick up the dustbins.

Recently autonomous cars are being in demand to launch into the market for safety and luxury. Autonomous car is an interesting area of research for Engineers and Researchers. Running an automated car on the road in real-time requires several factors to consider. Among them detecting the nature and type of the road is one major aspect. For different types of road surfaces, the control of speed, acceleration, break etc are required to adjust in a proper manner. This paper gives a very cost effective and efficient way of designing a surface identifier for fully autonomous cars. Using the surface identification module the car can identify the surface just in front of it and accordingly it can adjust its speed to move safely.
LPG is a mixture of Commercial Propane and Commercial Butane having saturated as well as unsaturated hydrocarbons. Because of the versatile nature of LPG it is used for many needs such as domestic fuel, industrial fuel, automobile fuel, heating, illumination etc. and the demand for LPG is on an exponential raise day by day. The leaked gases when ignited may lead to explosion. The number of deaths due to explosion of gas cylinders has been increasing in recent years. Thus there is a need for a system to detect and also prevent leakage of LPG. Before the development of electronics household gas detectors in the 1980s gas presence was detected with a chemically infused paper that changed its color when exposed to the gas. In this system we are going to propose the automatic gas booking and home safety system. Load is used to calculate the weight of the gas cylinder and if it reaches low weight. By using GSM the message will be transmitted to gas office and also we will receive the acknowledgement messages to us.

Driving with distraction or losing alertness increases the risk of the traffic accident. The emerging Internet of Things (IoT) systems for smart driving hold the promise of significantly reducing road accidents. In particular, detecting the unsafe hand motions and warning the driver using smart sensors can improve the driver's self-alertness and the driving skill. However, due to the impact of the vehicle's movement and the significant variation across different driving environments, detecting the position of the driver's hand is challenging. This paper presents SafeWatch – a system that employs commodity smartwatches and smartphones to detect the driver's unsafe behaviors in a real-time manner. SafeWatch infers driver's hand motions based on several important features such as the posture of the driver's forearm and the vibration of the smartwatch. SafeWatch employs a novel adaptive training algorithm which keeps updating the training dataset at runtime based on inferred hand positions in certain driving conditions. The evaluation with 75 real driving trips from 6 subjects shows that SafeWatch achieves over 97.0% recall and precision rates in detecting of the unsafe hand positions.
### ETPL EMB - 027  
**Ontology-based smart IoT engine for personal comfort management**

In this paper we propose a new approach to complex comfort management based on ontologies, being the main result of undergoing GOLIATH project. The approach comprises an application of Internet-of-Things (IoT) devices, an abstraction layer (SITE), a smart IoT middleware and a Multi-Agent System (MAS). Those elements allow a user to ask the system in a simple and natural way to control one or more comfort elements (including temperature, humidity, luminosity, noise, ventilation and air quality). Shared knowledge fed by the IoT and its semantic environment (SITE) will be used by smart layers (Knowledge base and MAS) to reason and propose an action on one or more IoT devices in turn managed by SITE. The implementation is based on underlying ontologies of comfort and actions and real-world objects connected with IoT devices, as well as a dedicated Context-Aware System to deal with dynamic situation, time/place of an interaction, evolving requirements, etc.

### ETPL EMB - 028  
**Design and Implementation of Wireless Based Android Controlled Spy-vehicle**

A new version of wireless controlled vehicle is proposed for spying purposes. This research will apply the smart phone to transmit Bluetooth wireless data to the Arduino Uno then it will give the data for vehicle’s movement. This robot supposes a movable spy robot with wireless system by using Arduino Uno as a main controller. The spy robot is made up of an IP camera, DC motors, servo motors for camera rotation, lithium rechargeable ion batteries, and four movable wheels. Smart phone camera is used as an IP camera to capture livestreaming video surrounding the robot and that information will be appeared in user’s smart phone GUI window. In this vehicle, the Bluetooth signals transmitted from the user’s smartphone are used for vehicle motion and then the camera mounted on robot will take the video livestreaming. This livestreaming information is sent back to the user’s smart phone via wireless system. For the system, the simulation result is done by using Proteus Professional schematic software. Arduino programming language is used for Arduino Uno and Basic4 Android programming is used to write desired App in smart phone. Keywords: Basic4 Android Programming, Bluetooth Wireless System, DC motor.
The past decade has seen significant advancement in the field of consumer electronics. Various ‘intelligent’ appliances such as cellular phones, air-conditioners, home security devices, home theatres, etc. are set to realize the concept of a smart home. They have given rise to a Personal Area Network (PAN) in home environment, where all these appliances can be interconnected and monitored using a single controller. In this paper, we make use of Home Automation techniques to design and implement a remotely controlled, energy-efficient and highly scalable Smart Home with basic features that safeguard the residents’ comfort and security. Busy families and individuals with physical limitation represent an attractive market for home automation and networking. This system will also assist and provide support in order to fulfill the needs of elderly and disabled in home. A wireless home network that does not incur additional costs of wiring would be desirable. Bluetooth technology, which has emerged in late 1990s, is an ideal solution for this purpose. This paper describes an application of Bluetooth technology in home automation and networking environment. It proposes a network, which contains a host controller (smart phone), wireless network and several client modules (home appliances). The client modules communicate with the host controller through Bluetooth devices. As a central controller; we are using a standalone embedded module that communicates with an Android application, our user interface. The prototype implementation of the proposed system is evaluated based on the criteria considered after the requirement analysis for an adequate home automation system.

Positioning system has been studying in many fields since the past. Recently, a lot of mobile companies are competing for smartphones. Accordingly, this paper proposes an indoor WiFi positioning system using Android-based smartphones.
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<th>ETPL EMB - 031</th>
<th>Remote Controlled Home Automation Using Android Application via Wi Fi Connectivity</th>
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<td>Today is a world of advanced ubiquitous mobile applications which are used exhaustively to save time and energy. These applications ease day-to-day life of a common man. Based on these technologies and applications we designed a Home Automation System. In this paper, we propose design and prototype implementation of home automation system that uses Wi-Fi technology and Android operating system. An attractive market for Home Automation System is for busy families and individuals with physical limitations. Users can control electrical appliances in home or office via smart phone. Application will also provide secure notifications and alarm for Burglary, fire hazards and LPG leakage. This project aims at controlling every happening at home or office on your fingers.</td>
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<tr>
<th>ETPL EMB - 032</th>
<th>Home Automation System Using Android and WiFi</th>
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<td>Today’s world has seen rapid and lucent spread of Android Devices. Any system, thus, developed which has support of the ubiquitous Android – enabled de vices will be much appreciated. Our project is based on this idea along with the much needed Automation System interfaced with the Android Systems. We have harnessed the easy-to-understand Android GUI to a constructive work whereby we see to it that the home is automated and energy is saved. This makes our home intelligent enough to save electricity, which is the need of the hour. We have elucidated this idea into realization with the help of Wi-Fi technology, which really offers easy and really much awaited Home Automation Systems (HASs). This system has an upper hand from other similar developments made with the technologies such as Bluetooth since it works on Wi-Fi. Thus we have offered a scalable and cost-effective Home Automation Systems (HASs).</td>
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Thank you!