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Human Identification Based Smart Power Saver Using Raspberry Pi

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ABSTARCT:

This project describes a new economical solution of home devices control system using Raspberry Pi processor. This control system consists of Raspberry Pi processor which acts as Control Unit, PIR, which is used to the Raspberry pi processor and Relays for device switching. The Raspberry Pi processor takes input from the PIR Sensor and processes this information and control the devices using switches ON/OFF with appropriate relays. The intelligent control software, which has been developed using Embedded Linux programming used to switch from one electrical device to another. The devices were fully controlled by the PIR sensor and by the control circuit with help of the relays. The Raspberry Pi is a credit-card-sized single-board computer developed in the UK by the Raspberry Pi Foundation. The Raspberry Pi has a Broadcom BCM2836 system on a chip (SoC), which includes an ARM1176JZF-S 900 MHz processor, Video Core IV GPU, and was originally shipped with 1GB of RAM. It does not include a built-in hard disk or solid-state drive, but uses an SD card for booting and long-term storage.

INTRODUCTION:

Each time the consumer is away from his residence for some motive but his household is within the home then first thing is in his mind that is about house protection and wellness of the household. Security over household and wellbeing of the loved ones normally will pay a high cost which middle category person can not come up with the money for for any such cost. For that reason this paper leverages security and wellbeing over a family in an extraordinarily low cost fee. At the present time theft is on upward thrust .So there may be an activity to build a safety approach for you to with ease manage this difficulty preserving user away from fear about his house safety in all case. One other function that enhances the safety facet of the method is its

potential of monitoring entry facets similar to doors and home windows so that in the occasion any breach, an alerting email or SMS is sent to the residence proprietor instantly. The method will aid them to check the identification of the thief by making use of the database that the views are recorded.

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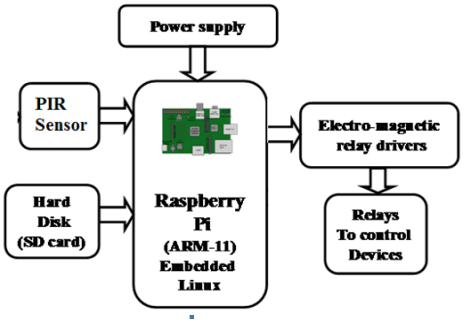
Realizing what to do when faced with distinct situation not most effective protects your possessions however can keep your existence. On this paper we use different types of sensors to acquire reliability by the use of the exceptional aspects of every sensor. The fee and the dimensions obstacle were protected the place invented Raspberry Pi mannequin with the aid of embedded company giving totally tremendous first-class of minicomputer. The PIR sensor detects the interrupt and at the moment digital camera might be activate, and then sends the understanding to the Raspberry Pi board. The device mechanically alerts the use with an email or message through GSM, thereby increasing safety stage. This approach also mechanically controls the air pollution in the indoor. This paper is named so considering we manage the environment automatically and furnish safety to the dwelling

LITERATURE REVIEW:

During recent past, a number of systems were introduced for security measurement based on wired network. In literature researches, suggest a number of security systems based on new technologies like GSM (Global System for Mobile communication), USN (Ubiquitous Sensor Networks), FPGA (Field Programmable Gate Array), DSP (Digital Signal Processor), and MCU (Microcontroller). Nowadays, Wireless monitoring for home security is among the cutting-edge researches in the field of International Intelligent Building. The paper "Automated Security System using Surveillance" presents the idea of the user gets immediate alert when someone enters the room. The employs IR sensors to detect the person entering the room and sends the output signal to the Raspberry Pi board for processing. The Raspberry board drives the relay circuit to control fan and light and capture the image using camera. It also consists of GSM modem to send message along with the link of the image [1]. "Image Tracking Based Home Security using Arduino Microcontroller" presents the idea of two sensors called PIR and vibrations sensors are attached and that is connected to the Arduino microcontroller. The password coder is fixed at the door; if the unknown person comes they will type the password and get inside the house and will get the notification and images of the respective person. Here the cloud server is connected to the system for the backup and the android to it, from that to the users android notification will be arrived [2]. "Home Security System" presents the idea of the android phone is the advantage of the system as it is carried by

everyone and used at any place at any instant as compared to personal computer. Internet will be the main communication media between the android phone and the home security system. The system has some drawbacks like it need continuous internet connection and there may be hardware failure which will harm the system The user must be able to handle the android phone so that he can effective use the system[3]. "PIR Based Security Home Automation System with Exclusive Video Transmission" presents the idea of home automation with video transmission through robot. In the smart phone the live streaming is visible. Robot has temperature sensor where if the temperature increases there will be buzzer indication alerting the owners of the house. The Robot is on and left in the house, where the security of house is assured [4]. "Research of Intelligent Home Security Surveillance System Based on Zigbee" present the idea of remote monitoring system was developed for home security. The system can send abnormal images and warning messages through MMS and SMS receive remote instruction and monitor household appliances. The experimental result shows that the system can attain surveillance of home safety with availability and reliability [5]. "A remote Security System Based on Wireless Sensor Network and GSM technology" presents the idea of low power consumption for home security alarm system developed by applying wireless sensor and GSM technology. It can detect the thief, leaking of gas, and fire, and send alarm message remotely. The hardware of this system includes single chip C5081F310, wireless sending and receiving chip CC1100, as well as the GSM module and can send the alarm short message when some dangerous condition has been detected [6]. "Java-Based Home Automation System" present the idea of developed a Java based home automation system. Embedded boards physically connected all the home automation devices and through integration with the personal computer based web server, provide remote access to the system. The Java based technology produces a secure solution. However the system requires an intrusive and expensive wired installation and use of a high end personal computer [7]. "A Wireless Sensor Network Air Pollution Monitoring System" presents the idea to improve the efficiency of wireless sensor network air pollution monitoring system. In this paper author design and implemented a new data aggregation algorithm. The algorithm is use to merge data eliminate duplicate, filter out invalid readings and summaries them into simpler form [8].

SYSTEM DESIGN:



Raspberry Pi The Raspberry pi interface board almost acts like minicomputer. LINUX based Raspbian operating system is used. Fig. 2 shows the Raspberry Pi B model. which employs SD card slots, USB power supply, 2 USB ports, General purpose input output pin which can be used both input and output control and interface with real world, Ethernet port, it, it has 700 MHZ processor. The power requirement of this board is 3.3V. The SD capacity can vary from 1 GB to 64 GB. The Raspberry Pi operates in the same way as a pc but requiring a keyboard, a display unit, ARM architecture comes in a variety of core configured to provide different capacity and different ranges

Fig: . Raspberry Pi B model

Features:

1. Easily switch from one electrical device to another.
2. simple and reliable
3. Embedded Linux programming
4. Low power consumption
5. Easily operable
6. Highly efficient design

CONCLUSION By using different sensors, high security is provided. Experimental work is done carefully. This project is implemented using advanced microcontroller Raspberry pi. The project with its corresponding demonstration shows the effective Home security Robot with live video transmission and Home automation module.This Home security Robot and the Home automation system runs automatically, providing home security through live video transmission and is cost effective as compared to previously existing systems. The basic level of home appliance controls has been implemented.

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