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PATENTABILITY SEARCH REPORT

Title: "Design and Implementation of Pyro electric Infrared Sensor based Security System"

Submitted to:

Address:

Email:

Client Reference No:

Date: 10th JUNE 2016

Features to Search

E1: The mechanism detects the human body existence by the signals produced by the Pyro electric Infrared (PIR) sensor.

E2: The system produces an alert alarm together with a call to a specified number by making use of GSM modem in case of detecting a suspected individual in restricted areas.

E3: The system enables smoke sensor which alerts in case of fire.

Search Strategy

Database: AcclaimIP, USPTO, Patentscope, Espacenet, Google Patents.

Keywords:

Set1	Security System
Set2	Pyro electric Infrared (PIR) sensor
Set3	alert alarm, smoke sensor

INTERNATIONAL CLASSIFICATION CODES WITH DEFINITIONS:

G08B25/10 Using wireless transmission systems

H04N5/225 Television cameras

G08B19/00 Alarms responsive to two or more different undesired or abnormal conditions, e.g. burglary and fire, abnormal temperature and abnormal rate of flow

Search Results Reference

1:

Patent/Publication Number: CN202221614

Title: Home security system

Assignee/Applicant: Guangdong University of Technology

Filing Date: 18 Aug 2011

Priority Date: 18 Aug 2011

Also Published as: NONE

Relevant Excerpt for E1	**<u>IN DESCRIPTION:</u>** **Paragraph No.36** **Burglar detector consists Magnetic sensors, pyroelectric infrared sensors.** Shelter the vibration sensor mounted on the entrance doors, door sensors are mounted on one door, when the door is open for more than 2 cm sensor will signal output**. By combining these two sensors to determine whether someone illegally entered exclude false positives. Pyroelectric infrared sensor can sense moving objects in the room.** BISS0001 is a high performance sensor signal processing integrated circuit. Quiescent current is very small, with pyroelectric infrared sensor LHI968 and a few external components can constitute a passive pyroelectric infrared sensor. The body has a constant body temperature, usually 37
	° C, it will issue a specific wavelength of infrared, passive probe is emitted by the human body to detect specific wavelengths of infrared light work, the body emitted through the Fresnel filter infrared enhanced gathered on the infrared sensor sources. Infrared sensors are usually used in pyroelectric element, this element is received will be lost when the charge balance infrared radiation temperature changes, outwardly charge, dual pyroelectric infrared detection element LHI968 internal circuit consists of two double pyroelectric ceramic, induction infrared signal, and then the FET amplifier output.

Relevant Excerpt for E2	**<u>IN DESCRIPTION:</u>** **Paragraph No. 26** In this embodiment, **the UART serial interface to connect MC35i GSM module, which can be connected to the phone.** FIG. 1, the present embodiment employs ZigBee and ARMll combining various sensor output signal processed by the transmission protocol CCM30 support ZigBee transceiver module to the host S3C6410, implement front-end signal detector and back-end controller Wireless connection between; host according to the circumstances of each sensor node is determined Families with unexpected events, further judgment is illegal entry into or a fire hazard or a gas leak, no matter what unexpected situations, **the host will start USB camera to capture live images via GSM / GPRS module SMS to inform the owner or the property management center and drive alarm device alarm, and with an Ethernet LAN or** **Internet access home gateway for home Internet access**
	network, which constitutes embed type of smart home security system.

Relevant Excerpt for E3	**<u>IN DESCRIPTION:</u>** **Paragraph No. 35** The utility model is the use of fire detectors DSM38 special function that measures the battery voltage and current, the probe detects a temperature probe and smoke the entire sensor circuit. Wherein the temperature sensor using TMP35G temperature sensors, smoke detectors manufactured using Motorola smoke detection alarm dedicated chip MC14468, an external probe HIS07 ionic smoke and a small amount of external components to complete smoke detection, alarm function, when probing When the smoke, it can sound an alarm via an external piezoelectric transducer and internal driver circuit. **The utility model is the use of fire detectors detect smoke by the MC14468 chip, TMP35G temperature sensor and DSM38 chip as the core of an integrated fire sensor, shown in Figure 3.** Compared with conventional smoke, temperature sensor, it has the volume small, multifunction, low power consumption, stable performance, etc., is more suitable for monitoring smart home fires. DS2438 charged with the fire alarm in sensor communication, temperature and smoke alarm information collection function; MC14468 and ionic smoke probe bears a smoke density testing, and a good sensor sensitivity according to pre-set to determine whether the police. Sensitivity settings can be adjusted as needed, the user can depend on the sensor

	mounting position, set the smoke detector chip sensitivity. This flexibility is set up so that the entire alarm system for the detection of the environment is more realistic. Structure of the entire sensor system is shown in Fig. As shown in Figure 3, based DSM38 chip composite sensor probe by monitoring the ambient temperature and smoke concentration, the temperature near the sensor information and smog information and timely feedback to the home gateway. **When a fire occurs near the probe, the ambient temperature and smoke concentration will vary, the main gateway information based on sensor temperature change and smoke alarms to the police, and track the location of the disaster based on the chip sequence code DSM38, also issued audible alarm to alert staff to take appropriate emergency measures.**

Reference 2:

Patent/Publication Number: CN203504689 **Title:** Remote monitoring device based on GPRS **Assignee/Applicant:** Shaanxi Institute of Technology **Filing Date:** 15 Oct 2013 **Priority Date:** 15 Oct 2013 **Also Published as:** NONE	
Relevant Excerpt for E1	**IN CLAIMS:** 2. GPRS-based remote monitoring device, wherein 1, wherein: the image acquisition module using integrated image compression function GXT-M201 camera module**; the infrared**

	sensor module consists of a pyroelectric infrared sensor and infrared sensor signal processor BISS0001 components. **IN DESCRIPTION: Paragraph No. 17** the infrared sensor module pyroelectric infrared sensor and infrared sensor signal processor BISS0001 components. Pyroelectric infrared sensor to respond to changes in **the infrared radiation in the area to prevent an intruder moves caused by the body's infrared signal is converted to an electrical signal.** Infrared sensor signal processor BISS0001 mainly on the pyroelectric infrared sensor output of weak signal amplification, filtering, delay, the comparison process, the corresponding alarm output signal.
Relevant Excerpt for E2	**IN DESCRIPTION:** **Paragraph No. 19** The Samsung ARM processor module I produced the 32-bit embedded processor S3C2410A. After the system, start the infrared sensor module detects if someone breaks into three, if not continue testing, if it detects intrusion signal to start the image acquisition module 2 camera and picture compression, then the picture is stored to the SD card storage module 6 Finally, **the use of GPRS transmission module 5 to send the picture to an MMS message to the user's mobile phone, remote monitoring alarm.**
Relevant Excerpt for E3	Not Disclosed

Reference 3:

Patent/Publication Number: CN102157050

Title: Multifunctional anti-theft alarm system for family safety

Assignee/Applicant: Han Fei

Filing Date: 15 Mar 2011

Priority Date: 15 Mar 2011

Also Published as: NONE

Relevant Excerpt for E1	**IN DESCRIPTION:** **Paragraph No. 5** **The infrared sensor is used to detect whether someone or object intrusion and detection data to the control module**; the gas sensor for detecting whether there is a gas and the gas concentrations in the environment, and the detected data output to the control module; 1 IR sensor: For security sensors, **the system uses active infrared beam sensor, relative to the conventional passive pyroelectric infrared sensor on the radio active infrared sensor mounted on the doors and windows and everything needed fortification**, using a multi-beam comprehensive judgment, when there is a volume of obstructions, was the trigger, greatly reducing the false alarm sensor. **IN CLAIMS:** **1. A multi-functional home security burglar alarm system comprising a control module, GSM module, remote module, smoke sensors, infrared sensors and gas sensors,** the control

	module and GSM module, remote module, smoke sensors, infrared and a gas sensor connected to the sensor, wherein: the smoke sensor is used in a concentration of smoke and fumes in the case of detecting the environment, and detection data is output to the control module; **said infrared sensor for detecting if someone or an object intrusion**, and detection data is output to the control module; said gas sensor for detecting whether there is a gas and the gas concentrations in the environment, and detection data is output to the control module; the control module receives the sensor data and processed, if The results show that the risk of processing, can be sent via SMS to the mobile phone GSM module; the control module also accepts remote control module, to arm and disarm operations.
Relevant Excerpt for E2	**IN DESCRIPTION:** **Paragraph No. 23** In this embodiment, **in order to achieve the function can send short messages to a designated number when the system alarm occurs,** it must have a keyboard and LED display to preset telephone numbers of anti-theft alarm system, the design selection HD7279 As a keyboard display driver. The chip supports 64 keyboard and eight digital control dynamic display, with the traditional keyboard and display chip 8279 compared to less peripheral chips, and the CPU is only 4-wire serial communication, saving the CPU I / O port resources. **Paragraph No. 20** The control module receives the sensor data and processed, **the results show that there are dangerous if not handled, then pass**

	4 through the GSM module to send text messages to the phone; the control module also accepts remote control module, to arm and disarm operations.
Relevant Excerpt for E3	**IN DESCRIPTION:** **Paragraph No. 30** 2. **Smoke sensor**: This design uses ion type smoke sensor Ionization smoke sensor is a technologically advanced, stable and reliable sensors are widely applied to a variety of fire alarm systems, the performance is far superior to gas-sensing resistor class fire alarm. **Paragraph No. 32** The present invention solves make home security and more timely, more convenient, it is no longer dependent on the implementation of the wired telephone the police, but with the most reliable and proven GSM mobile network in the most intuitive form of Chinese short message or phone, directly reflected in the case of the alarm location on the screen. **It uses active infrared sensor to detect security windows traditional network security becomes tangible for the intangible, to escape when the fire with ease. And equipped with smoke sensors and gas leak sensors, fire, gas leakage effect.**

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