



## AN RFID-BASED REMINDER SYSTEM AND SECURITY SYSTEM FOR SMART HOME

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### ABSTRACT:

The success of RFID in offer chain management is leading several to contemplate additional personal and pervasive deployments of this technology Unlike industrial settings, however, deployments that involve humans raise new and important issues associated with privacy, security, uncertainty, and a more various and evolving set of applications. Some individuals tend to forget things after they leave home for work or faculty. it's desired that there would be a informer system to mechanically remind individuals what they may have forgotten to bring on simply after they step outside their home. In this paper, gift a reminder system that uses the RFID technology to discover the objects that a user brings on. The system then offer a reminder object list to the user supported the history information collected from a similar user and also the events within the user's calendar on it day. The list is to inform the user objects he/she might need forgotten reception. A feedback mechanism is additionally designed to lower the likelihood of gratuitous reminding. The user will mark the objects that don't seem to be required from the reminder object list specified these objects won't seem within the list once more within the same scenario. A epitome system is introduced during this paper When the space temperature is high the buzzer are ringing Associate in Nursing if the door isn't closed at that point an unknown person enter into the space the buzzer are ringing. Therefore during this project that uses security.

*Keywords- ARM, RF, Sensors module, Buzzer, 9V battery, serial communication.*

## 1. INTRODUCTION:

In the previous couple of years, often nets Identification (RFID) technology has gained increasing attention as a versatile and comparatively quick resolution for tagging and wireless identification. Early successes within the quality pursuit and supply-chain domains including the falling value of tags have lead researchers to contemplate pervasive, public RFID deployments that support additional user-oriented ser-vices. Variety of investigations into personnel tracking and task automation mistreatment RFID have shown the technology's potential to facilitate way of life by seamlessly desegregation the virtual and physical worlds. Sadly, the bulk of such studies are restricted to technology and user evaluations over a brief time in restricted scenarios (often in a very laboratory). Moreover, the packaging encompassing this work has disclosed AN intense public concern with RFID privacy and policy problems that have gone mostly unaddressed.

We believe that a additional holistic approach is needed to effectively style and measure RFID-based pervasive computing systems. To the current finish, we are deploying a long-run, building-wide RFID-based test-bed in our department's building that may involve many RFID readers and antennas and thousands of tags. Our intent with this "RFID Ecosystem" is to explore the advantages of pervasive RFID infrastructures whereas characteristic and addressing their challenges before such systems area unit adopted wide in different

public settings, wherever issues might have additional serious implications.

Several properties distinguish RFID infrastructures for pervasive computing from those for supply-chain applications. First, pervasive RFID applications area unit possible to evolve and grow over time. we tend to already see RFID in elder care and object finding applications, every of which needs a flexible infrastructure that facilitates provisioning. Supply-chain applications area unit usually less dynamic and apply the technology in a very narrower capacity (mostly for inventory tracking). Second, as a result of a pervasive application can usually track folks and belongings instead of things in inventory, privacy problems should be thought of far more care-fully.

Finally, folks area unit less predictable than product moving through established distribution patterns in a very supply-chain. As such, we tend to should develop basically new ways in which to affect the variable-rate, partial, and rip-roaring information likely to be generated by act.

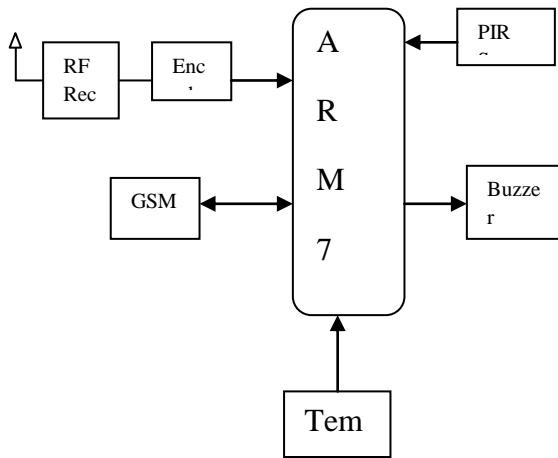
**Kit Section:**

Figure 2: Kit Section

**I. LPC2148 MICROCONTROLLER**

The ARM7TDMI-S may be a general purpose 32-bit silicon chip, that has speed execution and very little power supply. The ARM architecture is based on Reduced Instruction Set commands (RISC), the instruction set and connected peripheral mechanism are abundant less complicated than those of micro programmed Instruction Set Computers (CISC). This architecture leads to a high instruction turnout and exquisite period of time and interrupt response from a tiny low and effective TDMI processor core. Pipelining techniques are utilized so all peripherals of any process and memory systems will operate accordingly. Here while one instruction is being executing, its successor is being

decoded, and a 3rd instruction is being fetched from the system calls. ARM7TDMI-S processor additionally works with a singular subject field strategy called “Thumb” which makes the memory ideally suited to high-volume programs where memory of instructions is restricted to half word, or applications wherever code density is a problem, the idea behind Thumb is that of a super-reduced instruction set. Primarily, the ARM7TDMI-S processor has 2 instruction sets

The standard 32-bit ARM set

A 16-bit Thumb set

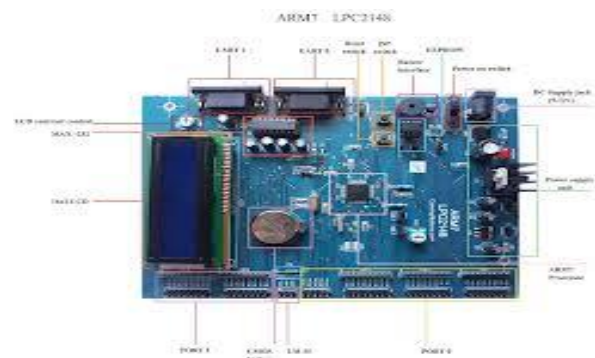


Figure 4: ARM7TDMI PCB board

**II. WIRELESS COMMUNICATION**

**GSM Overview:** world System for Mobile Communications or GSM (originally from cluster Special Mobile) is that the world's preferred customary for mobile phone systems. The GSM Association estimate that eightieth of the worldwide mobile market uses the quality.GSM is employed by over

one.5 billion folks across quite 212 countries and territories. This presence implies that subscribers will use their phones throughout the planet, enabled by international roaming arrangements between mobile network operators. GSM differs from its precursor technologies in this each signal and speech channels area unit digital, and so GSM is taken into account a second generation (2G) itinerant system. The GSM customary has been a plus to each customer, World Health Organization could get pleasure from the power to tramp and switch carriers while not exchange phones, and additionally to network operators, and World Health Organization will opt for instrumentation from several GSM instrumentation vendors.



Figure 5: GSM Modules

SMS Commands:

□AT+CIMI

Note: scan IMSI

□AT+CMGS="+919652063528"

□AT+CMGR=1

□AT+CMGD=1,4

Note: Delete it Note: Message

Global system for mobile communication (GSM) may be a globally accepted customary for digital cellular Communication. GSM is that the name of customaryization cluster established in 1982 to form a typical European mobile phone standard that may formulate specifications for a pan-European mobile cellular radio system operative at 900 megacycle per second A GSM electronic equipment may be a wireless electronic equipment that works with a GSM wireless network. A wireless electronic equipment behaves sort of a dial-up electronic equipment. the most distinction between them is that a dial-up electronic equipment sends and receives information through a hard and fast phone line whereas a wireless electronic equipment sends and receives information through radio waves. The operating of GSM electronic equipment is predicated on commands, the commands continuously begin with AT means that Attention) and end with a character. as an example, the dialing command is ATD; ATD3314629080; here the dialing command ends with punctuation. The AT commands area unit given to the GSM electronic equipment with the assistance of computer or controller. The GSM electronic equipment is serially interfaced with the controller with the assistance of goop 232.

### III. RF MODULE

**RF Module:** Radio Frequency: the ten kilohertz to three hundred gigacycle per second frequency vary which will be used for wireless communication. Conjointly used usually to consult with the radio wave generated by the system transmitter, or to energy gift from different sources which will be picked up by a wireless receiver.

- Wireless mouse, keyboard
- Wireless electronic communication
- Alarm and security systems
- Home Automation, remote
- Automotive measuring
- Intelligent sporting goods
- Handheld terminals, knowledge loggers
- Industrial measuring and tele communications
- In-building environmental watching and management
- High-end security and fireplace alarms

#### a) TRANSMITTER

The TWS-434 extraordinarily little, and square measure wonderful for applications requiring short-range RF remote controls. The transmitter module is barely 1/3 the dimensions of a customary stamp, and might simply be placed within a little plastic

enclosure. TWS-434: The transmitter output is up to 8mW at 433.92MHz with a spread of roughly four hundred foot (open area) outdoors. Indoors, the vary is about two hundred foot, and can bear most walls.

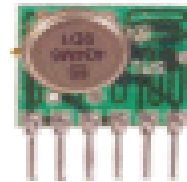


Figure 6: Transmitter

The TWS-434 transmitter accepts each linear and digital input will operate from one.5 to twelve Volts-DC, and makes building a miniature hand-held RF transmitter terribly simple. The TWS-434 is about 1/3 the dimensions of a customary stamp.

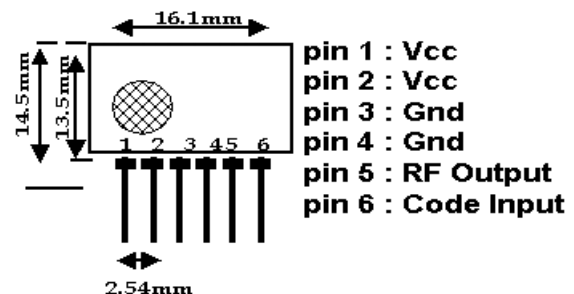


Figure 7: Pin Diagram of transmitter

#### a) RECEIVER



RWS-434: The receiver conjointly operates at 433.92MHz, and incorporates a sensitivity of 3uV. The WS-434 receiver operates from four.5 to 5.5 volts-DC, and has each linear and digital output.

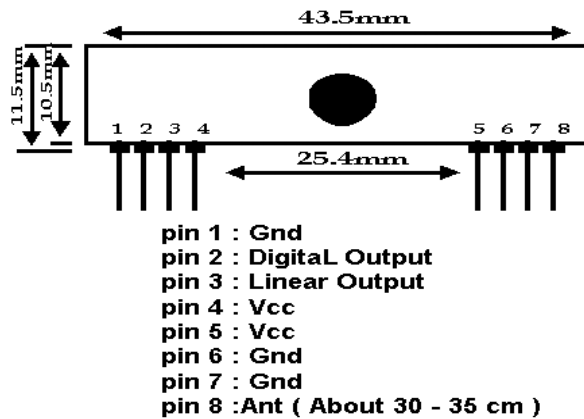


Figure 9: Pin out Diagram of receiver

#### IV. GENERATING DATA

The TWS-434 modules don't incorporate internal coding. If you would like to send easy management or standing signals like button presses or switch closures, think about employing AN encoder and decoder IC set that takes care of all coding, error checking, and secret writing functions. Motorola and Holtek create these chips. they're a wonderful thanks to implement basic wireless transmission management.

#### VI. RECEIVER DATA OUTPUT

A zero V to Vcc knowledge output is offered on pins. This output is generally wont to drive a digital decoder IC or a microchip that is playing the information secret writing. The receiver's output can solely transition once valid knowledge is gift. In instances, once no carrier is gift the output can stay low.

#### PIR sensor

- Passive Infrareds sensors (PIRs) area unit electronic devices that area unit utilized in some security alarm systems to notice motion of AN infrared emitting supply, sometimes a person's body.
- The electrical phenomenon device is created of a crystalline material that generates a surface electrical phenomenon once exposed to heat within the sort of infrared.
- When the number of radiation hanging the crystal changes, the number of charge conjointly changes and may then be measured with a sensitive FET device engineered into the device.
- This radiation (energy) is invisible to the human eye however may be detected by electronic devices designed for such a purpose
- The actual device on the chip is created from natural or artificial electrical phenomenon materials
- usually within the sort of a skinny film, out of atomic number 31 compound

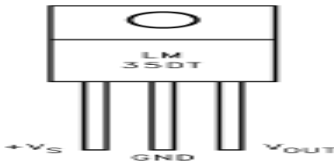
- gallium compound (GaN)
- caesium nitrate (CsNO<sub>3</sub>)
- polyvinyl fluorides
- derivatives of phenylpyrazine
- cobalt phthalocyanine
- Lithium tantalite (LiTaO<sub>3</sub>) could be a crystal exhibiting each electricity and electrical phenomenon properties

#### **Block process:**

- The PIR325 device has 2 sensing parts connected in an exceedingly voltage bucking configuration.
- This arrangement cancels signals caused by vibration, temperature changes and daylight.
- A body passing before of the component device} can activate initial one and so different the opposite} element whereas other sources can have an effect on each parts at the same time and be off.
- The radiation supply should go through the device in an exceedingly horizontal direction once device pins one and a couple of area unit on a horizontal plane so the weather area unit consecutive exposed to the IR supply.
- A focusing device is sometimes utilized in front of the device.

The LM35 series area unit exactness integrated-circuit temperature sensors, whose output voltage is linearly proportional to the Celsius (Centigrade) temperature,. The LM35 therefore has a bonus over linear temperature sensors label in ° Kelvin, because the user isn't needed to work out an outsized constant voltage from its output to get convenient Centigrade scaling. The LM35 doesn't need any external standardization or trimming to produce typical accuracies of  $\pm 1/4^{\circ}\text{C}$  at temperature and  $\pm 3/4^{\circ}\text{C}$  over a full  $-55$  to  $+150^{\circ}\text{C}$  temperature vary. Low value is assured by trimming and standardization at the wafer level. The LM35's low output electric resistance, linear output, and precise inherent standardization create interfacing to readout or management electronic equipment particularly straightforward. It may be used with single power provides, or with and and minus provides. Because it attracts solely sixty  $\mu\text{A}$  from its offer, it's terribly low self-heating, but zero.1°C in still air. The LM35 is rated to work over a  $-55^{\circ}$  to  $+150^{\circ}\text{C}$  temperature vary, whereas the LM35C is rated for a  $-40^{\circ}$  to  $+110^{\circ}\text{C}$  vary ( $-10^{\circ}$  with improved accuracy). The LM35 series is offered repacked in tight TO-46 semiconductor unit packages, whereas the LM35C, LM35CA, and LM35D also are on the market within the plastic TO-92 semiconductor unit package. The LM35D is additionally on the market in AN 8-lead surface mount tiny defining package and a plastic TO-220 package.

#### **VII. TEMPERATURE SENSOR LM 35**



## VIII. CONCLUSION

People forget things when they go out for work or school in the morning. In this paper, we present a prototype reminder system based on RFID and wireless technologies. The RFID makes it easy to detect and record the objects that the user takes out. Through the analysis on these records, the system would know what the user should bring along every day and what objects the system should put in the reminder list. Furthermore, the event calendar of the user is another source of information for constructing the reminder list. This system can be used for security system also. It detects the high temperature of the home and unknown persons. I think with some improvements the system can be used in real life.

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