ISSN: 0975-766X
CODEN: IJPTFI
Available Online through *Research Article*
www.ijptonline.com

SURGEONS LEAVE BEHIND INSTRUMENTS TRACKING AUTOMATED SYSTEM

S.Aaron James*, T.Siva[1], D. Suresh[2]
*Assistant Professor, Department of EIE, Sathyabama University, Chennai, Tamilnadu.
[1]Assistant Professor, Department of ECE, St.Joseph's Institute of Technology, Chennai, Tamilnadu.
[2]Assistant Professor, Department of ECE, St.Joseph's Institute of Technology, Chennai, Tamilnadu.
Email: aaronjameszion@yahoo.com

Received on 10-02-2015 *Accepted on 15-03-2015*

Abstract

An Automated System for Surgical Instrument and Sponge Tracking that increases the safety of surgical procedures .It utilizes Radio Frequency Identification Technology to aid in accounting for all items used during surgery .The approach is to develop an Electronic Inventory that can keep track of surgical item used during surgery. Radio Frequency Identification is used for non-line Of sight identification (A unique serial number of each sponge can be received by a Wireless means).A check- in station, a check-out station and a patient scanner are used by OR personal to track and /or find sponge throughout the surgery. All of these components by a software system that utilizes a color coded

interface for easy and fast assessment of the location of the items during surgery .

Keywords:

Radio Frequency, 8051 Microcontroller, Encoder, Decoder and with conduction sensors.

Introduction

There have been years, where there is a great risk of any surgical instrument being kept inadvertently inside a patient's body at the course of operation .Due to the advancement of the technology and the adaptation to new methodologies this would not happen in the future. The work aims to eliminate this discrepancy at the hospitals. Even if the patient's aliment is cured fully, he may again have to visit the hospital if any instrument like scissors or knifes are kept inside his body. This may even risk his life as this is a precious need of the hour, with this work must be successful at all the hospitals. The patient can be free of any instrument inside his body. This is possible by the use of Radio Frequency

Identification. In addition to this ,it also indicates that how many times a surgical instrument is used at the time of operation .this can be made possible by 8051 Microcontroller, Encoder, Decoder and with conduction sensors. The working of Radio frequency module is efficient and easy to handle. Our approach is to develop an Electronic Inventory that can keep track of surgical item used during surgery. Radio Frequency Identification. An RFID tag is an object that can be applied to or incorporated into a product, animal, or person for the purpose of identification and tracking using radio waves. Some tags can be read from several meters away and beyond the line of sight of the reader. . Basically two times a doctor can use a knife or scissors for an operation but due to miscount if he used third time means it can be found out easily through this work. A regulator circuit removes the ripples and also remains the same dc value even if the input dc voltage varies, or the load connected to the output dc voltage changes. This voltage regulation is usually obtained using one of the popular voltage regulator IC units. Voltage regulators comprise a class of widely used ICs. Regulator IC units contain the circuitry for reference source, comparator amplifier, control device, and overload protection all in a single IC. IC units provide regulation of either a fixed positive voltage, a fixed negative voltage, or an adjustably set voltage.

Aim and Scope of Present Investigation

Aim of the Work:

To develop an electronic inventory that can keep track of every surgical item used during surgery using wireless technology.

Scope of the Work

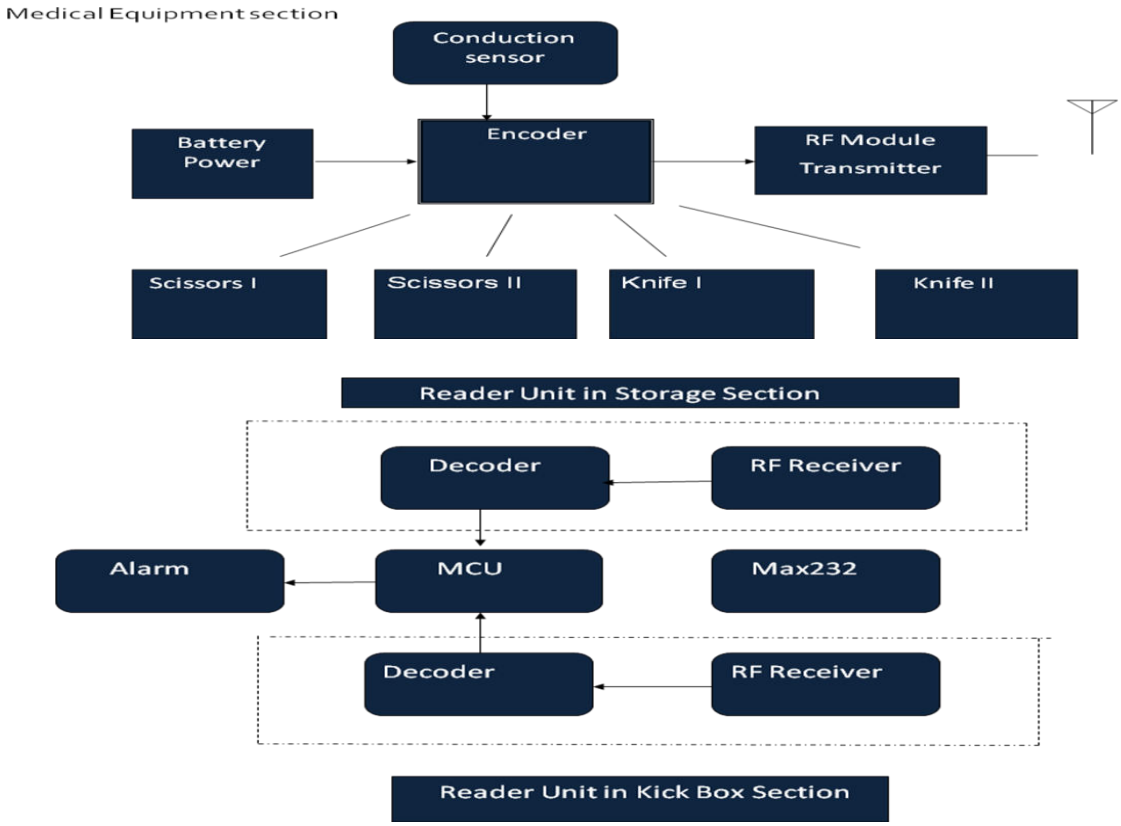
Medical Applications

The work is mainly used in hospital. There will be a great risk of any surgical instruments, being kept inadvertently inside the patient's body at the case of operation. The work aims to eliminate this discrepancy at the hospitals. Its also possible to know how many times a surgical instrument is used for an operation for e.g. Basically two times a doctor can use a knife or scissors for an operation but due to miscount if he used third time means it can be found out easily through this work. To develop an electronic inventory that can keep track of every surgical item used during surgery using wireless technology. Nurses are unable to provide support for the surgeon as they are focused on accurately counting sponges. More risk in identification .Its harmful to the patient because of miscount. More time consumes,

because of these things the work has been done .To avoid risk at the time of operation the work is used. Miscounts may occur, and it consumes much time. It's mainly used in the medical fields. The system uses the network approach to acquire the data from sensors and transmit them to a server through the encoder .The encoder transmits the data and the decoder receives the data. Due to unconscious doctor may keep a surgical instrument inside a patient's body during operation, if this work is used in hospitals, then the sensor will scan the body and it shows whether the surgical instrument is placed in the body. Sensors enabels when it is dipped in water.This also can be used in libraries and shopping centers.

Experimental Setup

Block Diagram



Block Diagram

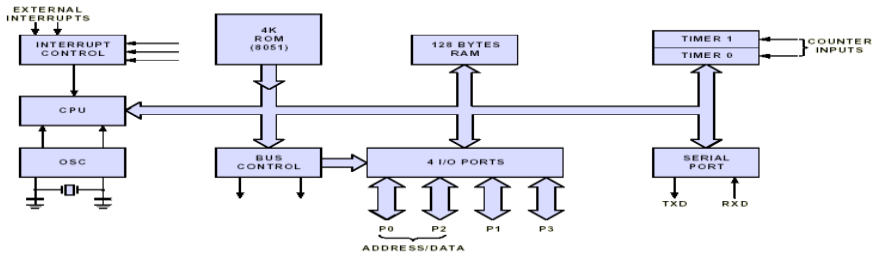
Block Description

Microcontroller:

A microcontroller is a kind of miniature computer that you can find in all kinds of gizmos. The Intel 8051 is Harvard architecture, single chip microcontroller (µC) which was developed by Intel in 1980 for use in embedded systems. Our

Microcontroller is AT89S51.It's the heart of our project. It collects the inputs and controls the output device. The generic 8051 architecture sports a Harvard architecture, which contains two separate buses for both program and data. So, it has two distinctive memory spaces of 64K X 8 size for both program and data. It is based on an 8 bit central processing unit with an 8 bit Accumulator and another 8 bit B register as main processing blocks. Other portions of the architecture include few 8 bit and 16 bit registers and 8 bit memory locations.Each 8051 device has some amount of data RAM built in the device for internal processing. This area is used for stack operations and temporary storage of data.

This base architecture is supported with on chip peripheral functions like I/O ports, timers/counters, versatile serial communication port. So it is clear that this 8051 architecture was designed to cater many real time embedded needs.Now you may be wondering about the non mentioning of memory space meant for the program storage, the most important part of any embedded controller. Originally this 8031 architecture was introduced with on chip, 'one time programmable' version of Program Memory of size 4K X 8. Intel delivered all these microcontrollers (8051) with user's program fused inside the device. The memory portion was mapped at the lower end of the Program Memory area. But, after getting devices, customers couldn't change any thing in their program code, which was already made available inside during device fabrication.



Block Diagram of the 8051 Core

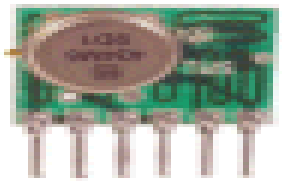
So, very soon Intel introduced the 8051 devices with re-programmable type of Program Memory using built-in EPROM of size 4K X 8. Like a regular EPROM, this memory can be re-programmed many times. Later on Intel started manufacturing these 8051 devices without any on chip Program Memory.

RF Modules:

Radio-frequency identification (RFID) is an automatic identification method, relying on storing and remotely retrieving data using devices called RFID tags or transponders. The technology requires some extent of cooperation of an RFID reader and an RFID tag. An RFID tag is an object that can be applied to or incorporated into a product, animal, or person

for the purpose of identification and tracking using radio waves. Some tags can be read from several meters away and beyond the line of sight of the reader. Radio Frequency, any frequency within the electromagnetic spectrum associated with radio wave propagation. When an RF current is supplied to an antenna, an electromagnetic field is created that then is able to propagate through space. Many wireless technologies are based on RF field propagation.

Receiver Module



Transmitter Module

Radio Frequency. The 10 kHz to 300 GHz frequency range that can be used for wireless communicationRadio Frequency. Also used generally to refer to the radio signal generated by the system transmitter, or to energy present from other sources that may be picked up by a wireless receiver.

Wireless mouse, keyboard

Wireless data communication

Alarm and security systems

Home Automation, Remote control

Automotive Telemetry

Intelligent sports equipment

Handheld terminals, Data loggers

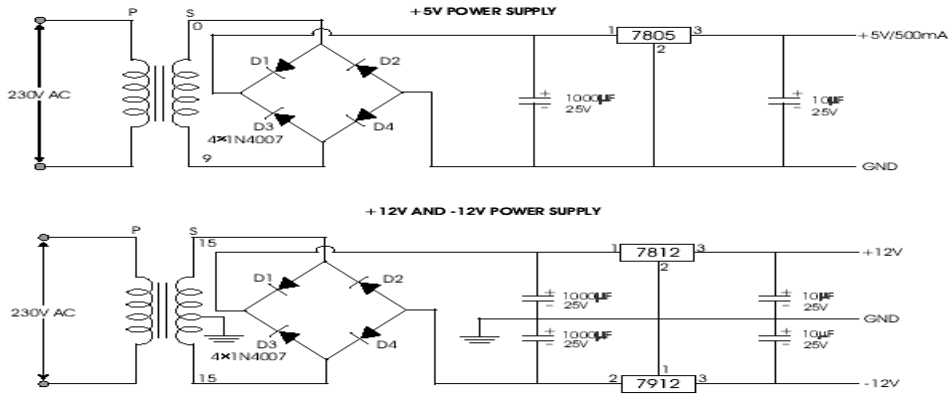
Industrial telemetry and tele-communications

In-building environmental monitoring and control

High-end security and fire alarms

Power Supply Unit:

The operation of power supply circuits built using filters, rectifiers, and then voltage regulators. Starting with an AC voltage, a steady DC voltage is obtained by rectifying the AC voltage, then filtering to a DC level, and finally,



regulating to obtain a desired fixed DC voltage. The regulation is usually obtained from an IC voltage regulator Unit, which takes a DC voltage and provides a somewhat lower DC voltage, which remains the same even if the input DC voltage varies, or the output Load connected to the DC voltage changes. The ac voltage, typically 220V rms, is connected to a transformer, which steps that ac voltage down to the level of the desired dc output. A diode rectifier then provides a full-wave rectified voltage that is initially filtered by a simple capacitor filter to produce a dc voltage. This resulting dc voltage usually has some ripple or ac voltage variation.A regulator circuit removes the ripples and also remains the same dc value even if the input dc voltage varies, or the load connected to the output dc voltage changes. This voltage regulation is usually obtained using one of the popular voltage regulator IC units.

Transformer:

The potential transformer will step down the power supply voltage (0-230V) to (0-6V) level. Then the secondary of the potential transformer will be connected to the precision rectifier, which is constructed with the help of op–amp. The advantages of using precision rectifier are it will give peak voltage output as DC, rest of the circuits will give only RMS output.

Bridge Rectifier:

When four diodes are connected as shown in figure, the circuit is called as bridge rectifier. The input to the circuit is applied to the diagonally opposite corners of the network, and the output is taken from the remaining two corners. Let us assume that the transformer is working properly and there is a positive potential, at point A and a negative potential at

point B. the positive potential at point A will forward bias D3 and reverse bias D4. The negative potential at point B will forward bias D1 and reverse D2. At this time D3 and D1 are forward biased and will allow current flow to pass through them; D4 and D2 are reverse biased and will block current flow.

The path for current flow is from point B through D1, up through RL, through D3, through the secondary of the transformer back to point B. this path is indicated by the solid arrows. Waveforms (1) and (2) can be observed across D1 and D3.

One-half cycle later the polarity across the secondary of the transformer reverse, forward biasing D2 and D4 and reverse biasing D1 and D3. Current flow will now be from point A through D4, up through RL, through D2, through the secondary of T1, and back to point A. This path is indicated by the broken arrows. Waveforms (3) and (4) can be observed across D2 and D4. The current flow through RL is always in the same direction. In flowing through RL this current develops a voltage corresponding to that waveform. Since current flows through the load (RL) during both half cycles of the applied voltage, this bridge rectifier is a full-wave rectifier.

One advantage of a bridge rectifier over a conventional full-wave rectifier is that with a given transformer the bridge rectifier produces a voltage output that is nearly twice that of the conventional full-wave circuit.

This may be shown by assigning values to some of the components shown in views A and B. assume that the same transformer is used in both circuits. The peak voltage developed between points X and y is 1000 volts in both circuits. In the conventional full-wave circuit shown—in view A, the peak voltage from the center tap to either X or Y is 500 volts. Since only one diode can conduct at any instant, the maximum voltage that can be rectified at any instant is 500 volts. The maximum voltage that appears across the load resistor is nearly-but never exceeds-500 v0lts, as result of the small voltage drop across the diode. In the bridge rectifier shown in view B, the maximum voltage that can be rectified is the full secondary voltage, which is 1000 volts. Therefore, the peak output voltage across the load resistor is nearly 1000 volts. With both circuits using the same transformer, the bridge rectifier circuit produces a higher output voltage than the conventional full-wave rectifier circuit.

IC voltage regulators:

Voltage regulators comprise a class of widely used ICs. Regulator IC units contain the circuitry for reference source, comparator amplifier, control device, and overload protection all in a single IC. IC units provide regulation of either a

fixed positive voltage, a fixed negative voltage, or an adjustably set voltage. The regulators can be selected for operation with load currents from hundreds of mill amperes to tens of amperes, corresponding to power ratings from mill watts to tens of watts.

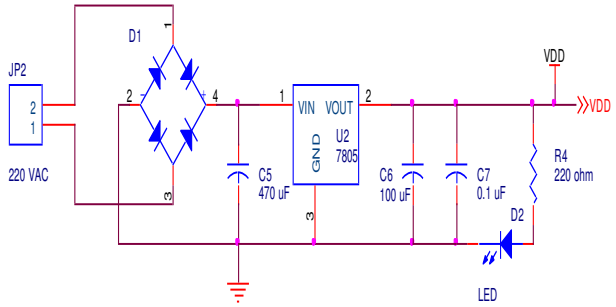
Circuit Diagram of Power Supply

A fixed three-terminal voltage regulator has an unregulated dc input voltage, Vi, applied to one input terminal, a regulated dc output voltage, Vo, from a second terminal, with the third terminal connected to ground.

The series 78 regulators provide fixed positive regulated voltages from 5 to 24 volts. Similarly, the series 79 regulators provide fixed negative regulated voltages from 5 to 24 volts.

For ICs, microcontroller, LCD -- 5 volts

For alarm circuit, op-amp, relay circuits -- 12 volt



Power Supply Circuit

Power Supply Circuit Description:

The operation of power supply circuits built using filters, rectifiers, and then voltage regulators. Starting with an AC voltage, a steady DC voltage is obtained by rectifying the AC voltage, Then filtering to a DC level, and finally, regulating to obtain a desired fixed DC voltage. The regulation is usually obtained from an IC voltage regulator Unit, which takes a DC voltage and provides a somewhat lower DC voltage, Which remains the same even if the input DC voltage varies, or the output Load connected to the DC voltage changes.

Encoder:

An encoder is a device used to change a signal or data into a code. The code may serve any of a number of purposes such as compressing information for transmission or storage, encrypting or adding redundancies to the input code, or translating from one code to another.

Decoder:

A decoder is a device which does the reverse of an encoder, undoing the encoding so that the original information can be retrieved. The same method used to encode is usually just reversed in order to decode. It converts coded inputs into coded outputs.

Conduction Sensor

It senses any liquid (Water, Blood like this..) and this signal is fed to the microcontroller.

Serial Communication

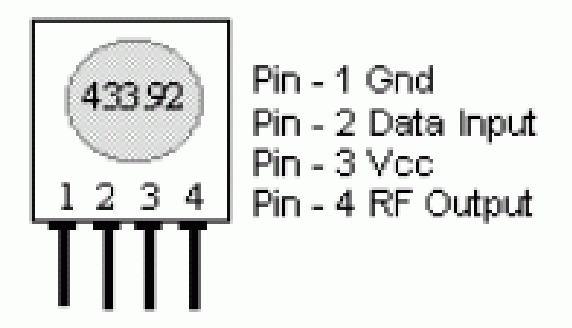
ATMEL microcontroller and write the code to initialize the UART and use it to send and receive data. Data you need to transmit and it will do the rest. It transmits data at standard speeds of 9600, 19200 bps etc. The advantage of hardware UART is that you just need to write the data to one of the registers of UART and your done, you are free to do other things while UART is transmitting the byte. UART automatically senses the start of transmission of RX line and then inputs the whole byte and when it has the byte it informs you (CPU) to read that data from one of its registers.

MAX 232:

MAX-232 is primary used for people building electronics with an RS-232 interface. Serial RS-232 communication works with voltages (-15V ... -3V for high) and +3V ... +15V for low) which are not compatible with normal computer logic voltages. To receive serial data from an RS-232 interface the voltage has to be reduced, and the low and high voltage level inverted. In the other direction (sending data from some logic over RS-232) the low logic voltage has to be "bumped up", and a negative voltage has to be generated. The MAX232 is a dual driver/receiver that includes a capacitive voltage generator to supply EIA-232 voltage levels from a single 5-V supply. Each receiver converts EIA-232 inputs to 5-V TTL/CMOS levels. These receivers have a typical threshold of 1.3 V and a typical hysteresis of 0.5 V, and can accept ±30-V inputs. Each driver converts TTL/CMOS input levels into EIA-232 levels. The driver, receiver, and voltage-generator functions are available as cells in the Texas.

RF Transmitter:

The transmitter output is up to 8mW at 433.92MHz with a range of approximately few meters. It accepts both linear and digital inputs. It can operate from 1.5 to 12 Volts-DC. It is approximately the size of a standard postage stamp.



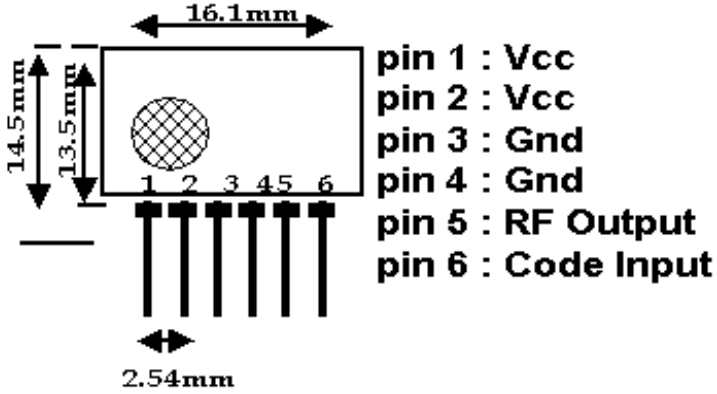
These RF Products are ideal for short-range remote control applications where cost is a primary concern. These modules require no external RF components except for the antenna. They generate virtually no emissions, making FCC and ETSI approvals easy.

The TWS-434 extremely small, and are excellent for applications requiring short-range RF remote controls. The transmitter module is only 1/3 the size of a standard postage stamp, and can easily be placed inside a small plastic enclosure.

TWS-434:

The transmitter output is up to 8mW at 433.92MHz with a range of approximately 400 foot (open area) outdoors. Indoors, the range is approximately 200 foot, and will go through most walls.

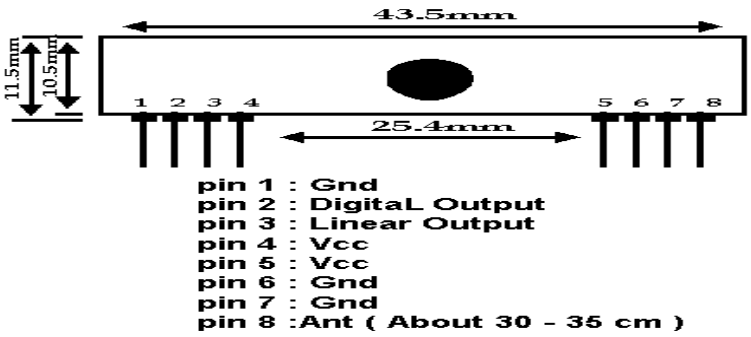
The TWS-434 transmitter accepts both linear and digital inputs can operate from 1.5 to 12 Volts-DC, and makes building a miniature hand-held RF transmitter very easy. The TWS-434 is approximately 1/3 the size of a standard postage stamp.



TWS-434 Pin Diagram

RF Receiver:

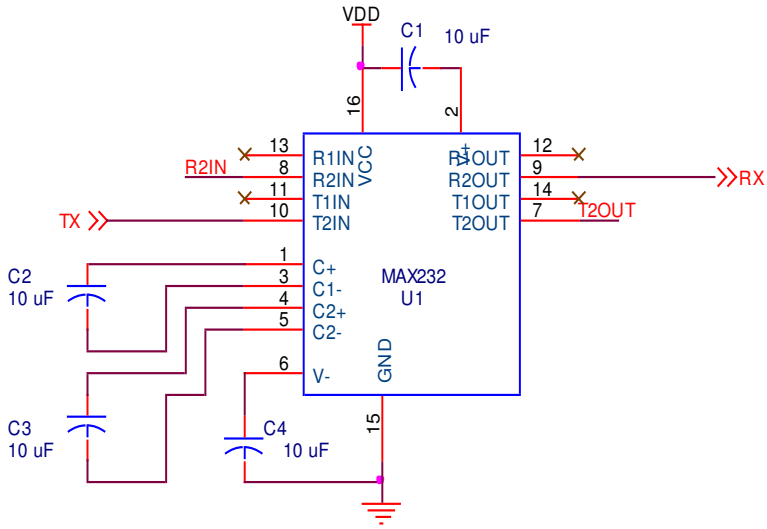
It also operates at 433.92MHz, and has a sensitivity of 3uV. It operates from 4.5 outputs.



The receiver also operates at 433.92MHz, and has a sensitivity of 3uV. The WS-434 receiver operates from 4.5 to 5.5 volts-DC, and has both linear and digital outputs.A 0 volt to Vcc data output is available on pins. This output is normally used to drive a digital decoder IC or a microprocessor which is performing the data decoding. The receiver's output will only transition when valid data is present. In instances when no carrier is present the output will remain low.

MAX 232:

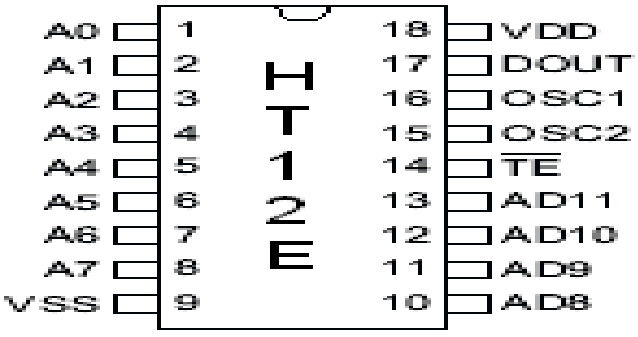
The UART input/output uses 0V for logic 0 and 5V for logic 1. The RS-232 standard (and the COM port) use +12V for logic 0 and –12V for logic 1. To convert between these voltages levels we need an additional integrated circuit (such as Maxim's MAX232).MAX-232 is primary used for people building electronics with an RS-232 interface. Serial RS-232 communication works with voltages (-15V ... -3V for high) and +3V ... +15V for low) which are not compatible with normal computer logic voltages. To receive serial data from an RS-232 interface the voltage has to be reduced, and the low and high voltage level inverted. In the other direction (sending data from some logic over RS-232) the low logic voltage has to be "bumped up", and a negative voltage has to be generated.



HT-12E Encoder:

Operating voltage: 2.4V~12V for the HT12E. Low power and high noise immunity. CMOS technology Minimum transmission word's of 4 words for the HT12E. Built-in oscillator needs only 5% resistor. Data code has positive polarity. Minimal external components. HT12E: 18-pin DIP/20-pin SOP package. Low power and high noise immunity CMOS technology .Operating voltage – 2.4V to 12V.Low standby current 0.1μA (typ.) at VDD=5V. Minimal external components.18 pin DIP or 20pin SOP package. Pair with Holtek's 2^{12} series of decoders. Built in oscillator needs only 5% resister. The 212 encoders are a series of CMOS LSIs for remote control system applications. They are capable of encoding information which consists of N address bits and 12_N data bits. Each address/ data input can be set to one of the two logic states. The programmed addresses/data are transmitted together with the header bits via an RF or an infrared transmission medium upon receipt of a trigger signal. The capability to select a TE trigger on the HT12E or a DATA trigger on the HT12A further enhances the application flexibility of the 212 series of encoders. Operating voltage 2.4V~12V for the HT12E.Low power and high noise immunity CMOS technology .Low standby current: 0.1_A (typ.) at VDD=5V.Minimum transmission word. Four words for the HT12E. Built-in oscillator needs only 5% resistor. Data code has positive polarity. Minimal external components.HT12E: 18-pin DIP/20-pin SOP package.

Pin Diagram:



Pin Description:

A0 – A7 →Input pins for address A0-A7 setting.

AD8 – AD11→input pins for address/data setting.

DOUT → Encoder data serial transmission output.

L/M →Latch/Momentary transmission format

Latch – floating or VDD

Momentary – Vss

TE (active low) →Transmission Enable.

OSC1 →oscillator input pin.

OSC2 →oscillator output pin.

VSS →Negative power supply, Ground.

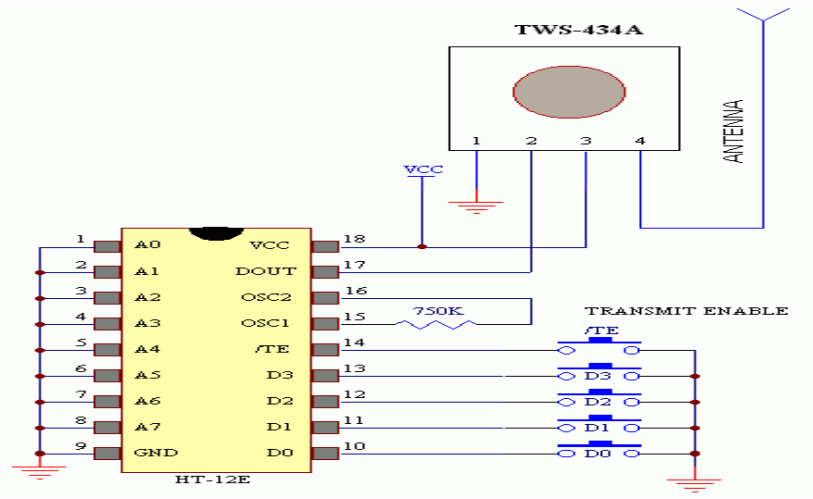
VDD →Positive power supply.

Applications:

- Burglar alarm system.
- Smoke and fire alarm system
- Car door controllers.
- Cordless telephones.
- Car alarm system, Security system
- Other remote control systems
- Garage door controllers

Description

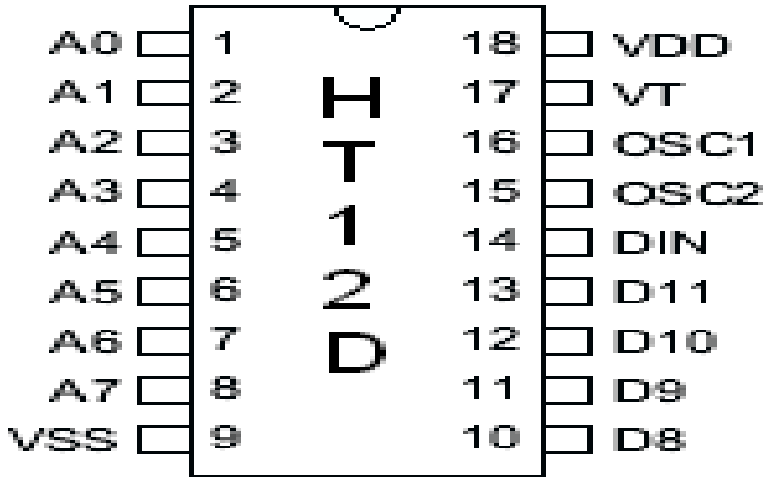
- The 2^12 encoders are a series of CMOS LSIs for remote control system applications. They are capable of encoding information which consists of N address bits and 12N data bits. Each address/data input can be set to one of fthe two logic states. The programmed addresses/data are transmitted together with the header bits via an RF transmission medium. Transmission is enabled by applying a low signal to the TE pin.



HT12D Decoder:

Operating voltage: 2.4V~12V. Low power and high noise immunity. CMOS technology. Low standby current. Capable of decoding 12 bits of information. Binary address setting. Received codes are checked 3 times. Address/Data number combination. HT12D: 8 address bits and 4 data bits. Built-in oscillator needs only 5% resistor. Valid transmission indicator. Easy interface with an RF transmission medium. Minimal external components. Pair with Holtek's 212 series of encoders. 18-pin DIP, 20-pin SOP package. Low power and high noise immunity CMOS technology. Operating voltage – 2.4V to 12V.Low standby current. Minimal external components .Capable of decoding 12 bits of information. Binary address setting. Valid transmission indicator. Easy interface with an RF and infrared transmission medium. 18 pin DIP or 20pin SOP package. Pair with Holtek's 2^{12} series of encoders. Built in oscillator needs only 5% resister.

Pin Diagram:



Pin description:

A0 – A7 → Input pins for address setting.

D8 – D11 →Output data pins, power on status is low.

DIN → Serial data input pin.

OSC1 →Oscillator input pin.

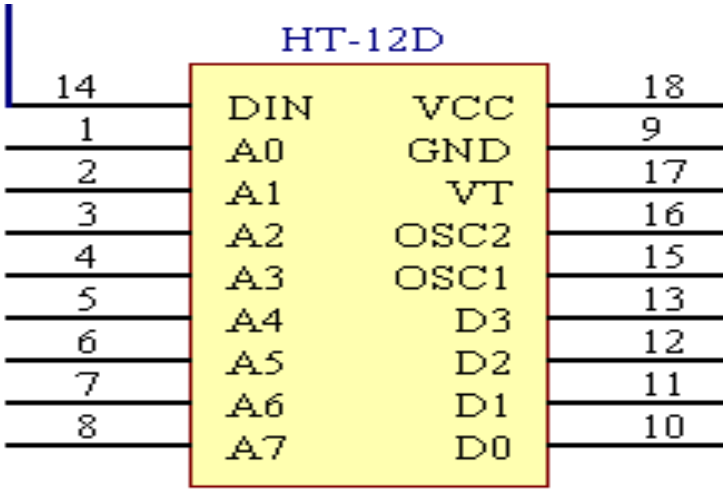
OSC2 →Oscillator output pin.

VSS →Negative power supply, ground.

VDD →Positive power supply.

Applications:

- Burglar alarm system.
- Smoke and fire alarm system.
- Car door controllers.
- Cordless telephones.
- Garage door controllers
- Car alarm system Security system
- Other remote control systems



Description:

2^12 decoders are a series of CMOS LSIs for remote control system applications. The decoders receive serial addresses and data from a programmed 2^12 series of encoders that are transmitted by a carrier using an RF transmission medium. They compare the serial input data three times continuously with their local addresses. If no error or unmatched codes are found, the input data codes are decoded and then transferred to the output pins. The VT pin also goes high to indicate a valid transmission.

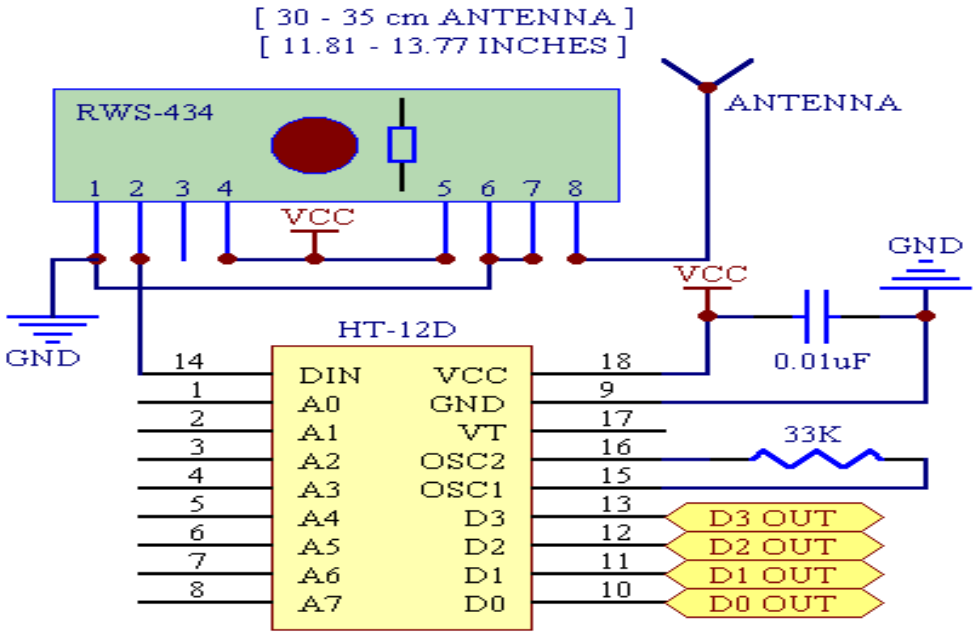
The 2^12 series of decoders are capable of decoding information's that consist of N bits of address and 12-N bits of data. It converts coded inputs into coded outputs.

Features:

- Operating voltage 2.4V~12V for the HT12E

- Low power and high noise immunity CMOS technology
- Low standby current: 0.1_A (typ.) at VDD=5V
- Minimum transmission word
- Four words for the HT12E
- Built-in oscillator needs only 5% resistor
- Data code has positive polarity
- Minimal external components
- HT12E: 18-pin DIP/20-pin SOP package

Pin diagram:



Alarm:

To provide alert signal in any illegal movements

Existing system:

- *Nurses are unable to provide support for the surgeon as they are focused on accurately counting sponges*
- *More risk in identification*
- *Its harmful to the patient because of miscount*
- *More time consumes*

Future Enhancements:

The idea implemented in this work can be extended to even a more broad sense. First of all, it can just be introduced in a few hospitals which are equipped with all facilities just for testing. At the later stage, it can be generalized to all the Hospitals including the Government Hospitals and other Health care units. In this way, one can ensure the integrity of the Doctors and also the safety of the patients.

The Sensors used can also be used to indicate whether any object or an obstacle is present in the nearby areas .It can be used in the Missile troops if there is any devastating object is present nearby. Also, in future I feel that this technology will be used widely as there will be Patients always and there will be health care systems. Many diseases arise because of infection .As this work mainly focuses to eliminate these infections, diseases would greatly be reduced. If diseases are reduced then the growth rate will increase t will in turn, add to the development of the nation.

The Scissors or any instrument there off, can be measured and the size and the constructions noted, can be used to track the instruments of the same nature present. The method used is also very much simple and easy to perceive which is suitable for all the persons handling. This can be ensured so that all the patients are handled with utmost care and safety.

Summing up, the future Enhancements can be:

- Usage of more sensors of this kind to detect harmful objects in case of terror attack.
- Implementation of Wireless Reception technology by Radio frequency means.
- Automatic health care intensive units and Public systems.
- Increase the sustainability and the precision of the measuring devices to produce better results, which can be used in Pathogen Identifying Centers (PIC).

Limitations:

- Sensors are susceptible to temperature variations
- Accuracy and Reliability has to be improved.
- Not very much cost effective.
- Not suitable in all Environments.
- Requires constant power supply.

- Analog to Digital converter is required which makes the circuit complex.
- Sensors have to be handled with utmost care.

But it can be seen that these limitations could be overcome. Our Model offers all the features of already existing machine as well an enormous scope for improvement as and when new technologies are introduced in the field of Engineering.

Applications:

- Medical Applications
- Shopping Applications
- Library applications

Advantages:

- Accounting for Safety
- Simplicity
- Ease of deployment
- More reliable.

Results and Discussions

Overview of the process

The overall result of the work is satisfactory. The Radio frequency ID of patients was analyzed and the inference was good. This work can be more really enhanced to a form of the Identification tag worn by the people. In this work, there is a need to carry the RF module in front of the computer. On the other hand, if there is a sensor, then there is no need to carry the RF module in front of the computer.

Steps Undergone

First of all, the 8051 Evaluation board was designed using the ORCAD software. It consists of the Power supply section, Encoder, Decoder and the ports necessary for the Interrupts. Then, the RF module was designed. It consisted of the RF transmitter and RF receiver. As known, the Transmitter section is connected to the Encoder Unit and the Receiver section is connected to the Decoder. An Antenna is provided, by which the transmission from the Encoder to the Decoder is enabled. The RF module is provided with a standard 9V DC power supply. There is also a resistor provided and is short circuited to prevent the current leakage due to the external power supply. The Visual Basic program needs to be installed

in the Computer. From there the file called as Sponge tracking needs to be created which contains the programs. The blocks for the profile and other necessary diagrams are created using the program which is known as the Graphical User Interface. It is a very convenient and a user friendly program created for these types of applications. Thus, together with all these components, functioning properly, the work performance is efficient.

Performance Analysis

Analyzing the performance of the work, it is clear that all the sensors must work in the proper state for good results. From this, it is clear that the impact of the Environment plays a vital role in the work. As far as IP address is concerned, the research did not have any hurdles and performed satisfactorily. Also, the amplifying unit and the Analog to Digital converter must function properly. During one of the experimental set up session, the amplifying section in the work was not able to amplify the small voltage variation during which it became difficult for the Analog to Digital converter to convert it to the Digital.

If much of the resources are tapped, this system has the efficacy to produce desired results. Regulator IC units contain the circuitry for reference source, comparator amplifier, control device, and overload protection all in a single IC. IC units provide regulation of either a fixed positive voltage, a fixed negative voltage, or an adjustably set voltage. An Antenna is provided, by which the transmission from the Encoder to the Decoder is enabled. The RF module is provided with a standard 9V DC power supply.

Wireless Antenna

Summary and Conclusion

Summary

The system uses the network approach to acquire the data from sensors and transmit them to a server through encoder. The system automates the acquisition and monitoring of physiological parameters by continuous display on the monitor screen. In the storage room, operation sections and kick box sections. Programming is done using industry strength software to display data and trends in real time on a standard PC.In this system every section we will provide a, sensors so when the surgical instrument enters in to the laboratory section means the corresponding information's receives and stores in the database and automatically gets the information and displays on the screen for the doctors reference, hence by means this there is no need to count the surgical instruments that how many time its used.It is very much clear that this work is the precious need of the hour and it is very much important in almost all organizations .It can be implemented in various Hospitals, Health care systems and in other private health care centers. Patients need to be educated about the use of RF tag and the importance of it. Once this is implemented widely, the patients will not look it as some other form and panic about it.As said previously, miscount may occur so, to avoid that we a using this work.

Conclusion

A portable parameter monitoring and analysis system for physiological studies and for assisting patient-centric health care management is developed. The system uses the network approach to acquire the data from sensors and transmit them to a server through the encoder. The system automates the acquisition and monitoring of physiological parameters by continuous display on the monitor screendoctors.storage room, operation sections and kick box sections. Programming is done using industry strength software to display data and trends in real time on a standard PC.As quoted in the Summary section, if much of the resources are tapped; this system has the efficacy to produce desired results. They need not fear about the inadvertent mistakes made by the nurses there or they need not cram up the facts and statics of the disease incurred. All they need to know is to use the RF Id properly and safely so that the doctor monitors the rest.India is a developing nation. It has to improve in all spheres namely Industry, Agriculture, Economy, Production Medicine and all other fields whichever. Do we all know that the majority of the people in India have Diabetes and also the risk of operations? They all tend to go to Hospitals for their cure, we all know to err is human. Mistakes are possible everywhere, let it be a very big Health Care Organization or a small clinical system. A patient is a patient and life is common for

everyone. If human errors creep into these reports of the patients and if the medication is done incorrectly, then who will hold the mistake? I am happy that my work is a small step towards the elimination of these human errors. As we all know computer is our slave and it does what we say to be done. So, if it is programmed to perform correctly, automatically everything goes correctly, in the order stated. So, if the number of patients cured increases grossly, obviously there will be less number of diseases and it is a brave step towards the improvement in Medicine.

References

1. C. Kaiser, S. Friedman, K. Spurling, T. Slowick, and H. Kaiser, "The retained surgical sponge."
2. A. Gonzalez-Ojeda, D. Rodriguez-Alcantar, H. Arenas-Marquez, E. Sanchez Perez-Verdia, R. Chavez-Perez, R. Alvarez-Quintero, and A. Perea-Sanchez, "Retained foreign bodies following intra-abdominal surgery." *Hepatogastroenterology, vol. 46, no. 26, pp. 808–12.*
3. C. Zhan and M. Miller, "Excess length of stay, charges, and mortality attributable to medical injuries during hospitalization."
4. C. Zhan and M. Miller, "Excess length of stay, charges, and mortality attributable to medical injuries during hospitalization." JAMA, vol. 290, no. 14, pp. 1868–74, 2003.
5. A. Gawande, D. Studdert, E. Orav, T. Brennan, and M. Zinner, "Risk factors for retained instruments and sponges after surgery." N Engl J Med, vol. 348, no. 3, pp. 229–35, 2003.
6. K. Finkenzeller, RFID handbook: fundamentals and applications in contactless smart cards and identification, 2nd ed., 2003.
7. M. Levine, B. Adiba, K. Mandl, I. Kohane, and J. Halamka, "What are the benefits and risks of fitting patients with radiofrequency identification devices." PLoS Medicine, vol. 4, no. 11, 2007.
8. S. Sarma, D. Brock, and D. Engels, "Radio frequency identification and the electronic product code," IEEE Micro, vol. 21, no. 6, pp. 50– 54, 2001.
9. S. Seidman, P. Ruggera, R. Brockman, B. Lewis, and M. Shein, "Electromagnetic compatibility of pacemakers and implantable cardiac defibrillators exposed to rfid readers," International Journal of RFID Technology and Applications, vol. 1, no. 3, 2007.

10. A. Rogers, E. Jones, and D. Oleynikov, "Radio frequency identification (rfid) applied to surgical sponges." Surg Endosc, 2007.

Corresponding Author:

S. Aaron James*,

Email: *aaronjameszion@yahoo.com*