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Perfecting - Based Data Dissemination in Vehicular Cloud Systems

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Abstract:

In the last decade, vehicular ad hoc networks (VANETs) have been widely studied as a method for incorporating wireless communication capabilities in vehicular transportation systems for safety, energy, and comfort issues. VANETs consist of two types of nodes, i.e., mobile vehicles and stationary roadside wireless access points (APs); the wireless Aps serve as an infrastructure for network connectivity in VANETs. In VANETs, vehicle-to-vehicle (V2V), infrastructure-to vehicle (I2V), and vehicle-to-infrastructure (V2I) communications are defined, depending on the direction of traffic flow. I2V and V2I aim for data delivery services from/to the Internet through the roadside wireless APs in VANETs.

Existing system

Internet of Things (IoT) envisions a future in which anything/anyone/any service can be linked by means of appropriate information and communication technologies which will bring technological revolution in the fields of domestics, smart homes, healthcare systems, goods monitoring and logistics. The design and implementation of an IOT-based health monitoring system for emergency medical services which can demonstrate collection, integration, and interoperation of IoT data flexibly which can provide support to emergency medical services like Intensive Care Units(ICU) based LCD). The device LCD displaying the heart beat rat and counting values through sending pulses from the sensor.

Drawback: A routing protocol for query processing in vehicular networks

Proposed system

We are using LPC2148 as master to control entire system. Here we are implementing vehicle-to-infrastructure (V2I) communication using RFID reader attached to the vehicle and RFID cards are considered as access points. These cards are considered as different places and when the vehicle reaches the card/area that will be updated in the web server using IoT module interfaced to the controller.

Here the patients are provided with a unique patient ID card. After placing this RFID card near the reader our controller takes the patient details from that RFID card and then the patient condition will be updated using

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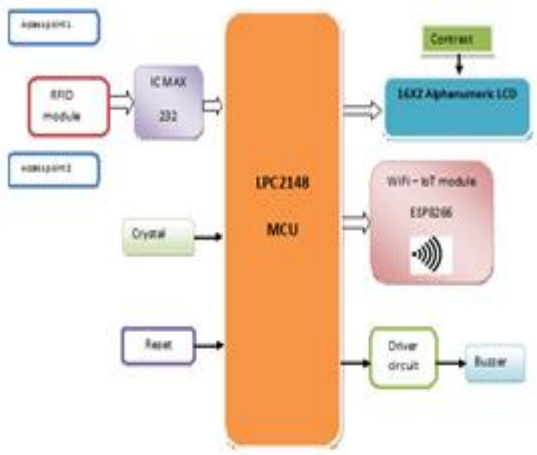
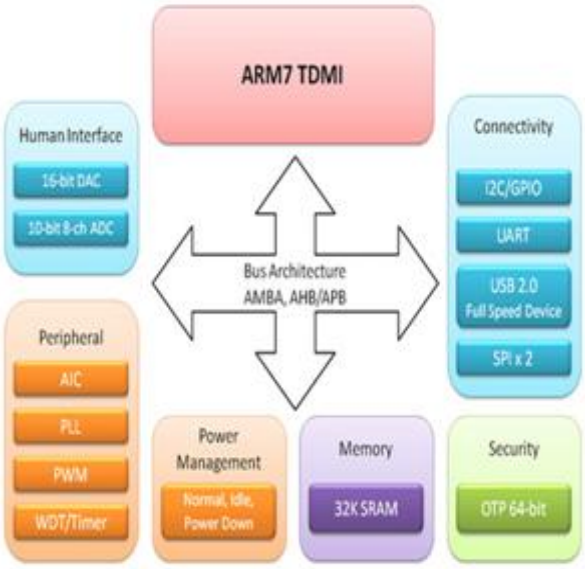
different sensors. This project describes the design of a simple, low-cost controller based patient health monitoring system. Heart rate of the subject is measured from the thumb finger using IRD (Infra Red Device sensors). This instrument employs a simple Opto electronic sensor, conveniently strapped on the finger, to give continuous indication of the pulse digits. A temperature sensor is included to know the patient's temperature.



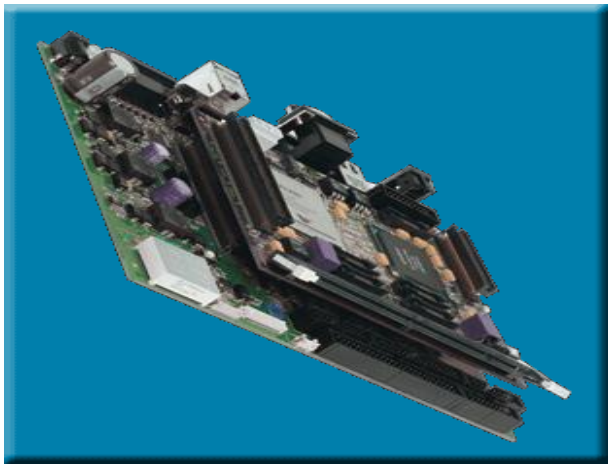
Modules used in this project:

The **LPC2148** are based on a 16/32 bit ARM7TDMI-S™ CPU with real-time emulation and embedded trace support, together with 128/512 kilobytes of embedded high speed flash memory.

A 128-bit wide memory interface and unique accelerator architecture enable 32-bit code execution at maximum clock rate. For critical code size applications, the alternative 16-bit Thumb Mode reduces code by more than 30% with minimal performance penalty. With their compact 64 pin package, low power consumption, various 32-bit timers, 4- channel 10-bit ADC, USB PORT,PWM channels and 46 GPIO lines with up to 9 external interrupt pins these microcontrollers are particularly suitable for industrial control, medical systems, access control and point-of-sale. With a wide range of serial communications interfaces, they are also very well suited for communication gateways, protocol converters and embedded soft modems as well as many other general-purpose applications.



ARMPROCESSOR



ARM7TDMI Processor Core

- Current low-end ARM core for applications like digital mobile phones
- TDMI
  - T: Thumb, 16-bit compressed instruction set
  - D: on-chip Debug support, enabling the processor to halt in response to a debug request
  - M: enhanced Multiplier, yield a full 64-bit result, high performance
  - I: Embedded ICE hardware
- Von Neumann architecture

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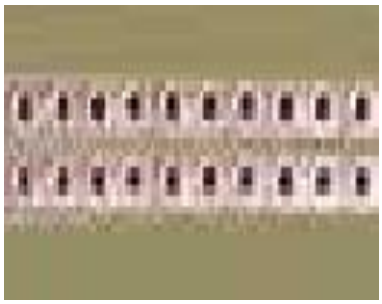
Humidity Sensor:

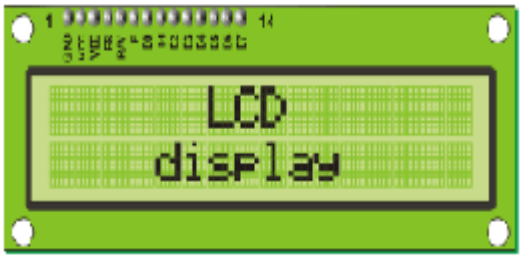
A humidity sensor (or hygrometer) senses, measures and reports the relative humidity in the air. It therefore measures both moisture and air temperature. Relative humidity is the ratio of actual moisture in the air to the highest amount of moisture that can be held at that air temperature.



Liquid Crystal Display:

LCD stands for Liquid Crystal Display. LCD is finding wide spread use replacing LEDs (seven segment LEDs or other multi segment LEDs) because of the following reasons:

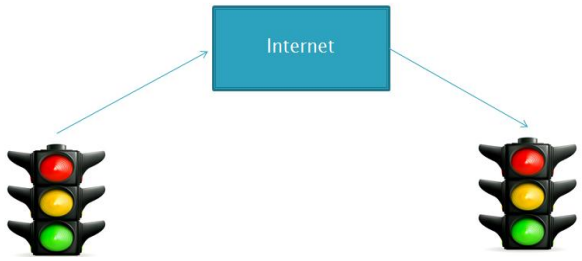
1. The declining prices of LCDs.
2. The ability to display numbers, characters and graphics. This is in contrast to LEDs, which are limited to numbers and a few characters.
3. Incorporation of a refreshing controller into the LCD, thereby relieving the CPU of the task of refreshing the LCD. In contrast, the LED must be refreshed by the CPU to keep displaying the data.
4. Ease of programming for characters and graphics.



INTERNET OF THINGS

Internet is helping people to communicate each other using different applications

Traffic Light Wants to communicate to other traffic light using internet?



Internet of things helps the things to communicate each other using IoT module

ESP8266EX

The Internet of Things (IoT) is the network of physical objects or "things" embedded with electronics, software, sensors, and network connectivity, which enables these objects to collect and exchange data.

Wi-Fi module

ESP8266EX offers a complete and self-contained Wi-Fi networking solution; it can be used to host the application or to offload Wi-Fi___33 networking functions from another application processor. When ESP8266EX hosts the application, it boots up directly from an external flash. In has integrated cache to improve the performance of the system in such applications. Alternately, serving as a Wi-Fi___33 adapter, wireless internet access can be added to any micro controller-based design with simple connectivity (SPI/SDIO or I2C/UART interface).

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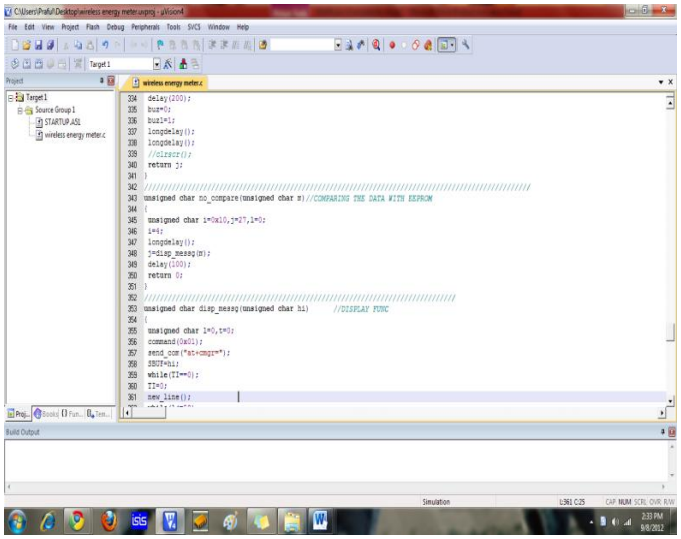
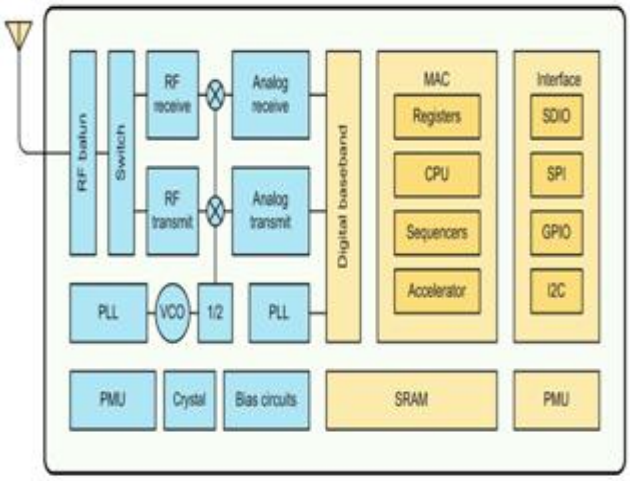
Software tools

Keil compiler is a software used where the machine language code is written and compiled. After compilation, the machine source code is converted into hex code which is to be dumped into the microcontroller for further processing. Keil compiler also supports C language code.





Flash Magic

Flash Magic is a tool which is used to program hex code in EEPROM of micro-controller. It is a freeware tool. It only supports the micro-controller of Philips and NXP. It can burn a hex code into that controller which supports ISP (in system programming) feature. Flash magic supports several chips like **ARM Cortex M0, M3, M4, ARM7 and 8051.**

Advantages:

- Ease of operation
- Low maintenance cost
- Fit and forget system
- No wastage of time
- Durability
- Accuracy

Applications:

- Hospitals
- Remote heart rate monitoring applications
- Body temperature Monitoring
- Local monitoring applications
- Designed for Home and Clinical Applications

Future scope

Video monitoring could be used for monitoring patients

Result of our project displaying normal heart rate

Conclusion

Hence this project is designed and implemented successfully by using advanced processor ARM7TDMI which is a 32 bit microprocessor in embedded systems.

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