8051 microcontroller based

RF BASED REMOTE CONTROL INTODUCTION-: The Project Long Range Remote Control can be used to remotely control a number of Electrical or Electronic Gadgets connected to it. Unlike Infra Red remote control, this Project employs FM transmission and Reception, and hence it can be used for comparatively longer range. Any gadget can be switched on/off by keying the number allocated to it. The Receiver is made up of the famous 8 bit Microcontroller from Atmel. The Microcontroller is used as the Master in the receiver end which is used to control all the devices.

It decodes the Signal from the transmitter and control the relays according to the signal. For transmission we are using frequency modulation at the frequency of 433. 92Mhz. A BRIEF INTRODUCTION TO 8051 MICROCONTROLLER-: When we have to learn about a new computer we have to familiarize about the machine capability we are using, and we can do it by studying the internal hardware design (devices architecture), and also to know about the size, number and the size of the registers.

A microcontroller is a single chip that contains the processor (the CPU), non-volatile memory for the program (ROM or flash), volatile memory for input and output (RAM), a clock and an I/O control unit. Also called a " computer on a chip," billions of microcontroller units (MCUs) are embedded each year in a myriad of products from toys to appliances to automobiles. For example, a single vehicle can use 70 or more microcontrollers. The following picture describes a general block diagram of microcontroller.

AT89S52: The AT89S52 is a low-power, high-performance CMOS 8-bit microcontroller with 8K bytes of in-system programmable Flash memory. The device is manufactured using Atmel's high-density nonvolatile

memorytechnologyand is compatible with the industry-standard 80C51 instruction set and pinout. The on-chip Flash allows the program memory to be reprogrammed in-system or by a conventional nonvolatile memory programmer. By combining a versatile 8-bit CPU with in-system programmable Flash on a monolithic chip, the Atmel AT89S52 is a powerful microcontroller, which provides a highly flexible and ost-effective solution to many, embedded control applications. The AT89S52 provides the following standard features: 8K bytes of Flash, 256 bytes of RAM, 32 I/O lines, Watchdog timer, two data pointers, three 16-bit timer/counters, a six-vector two-level interrupt architecture, a full duplex serial port, on-chip oscillator, and clock circuitry. In addition, the AT89S52 is designed with static logic for operation down to zero frequency and supports two software selectable power saving modes. The Idle Mode stops the CPU while allowing the RAM, timer/counters, serial port, and interrupt system to continue functioning.

The Power-down mode saves the RAM con-tents but freezes the oscillator, disabling all other chip functions until the next interrupt The hardware is driven by a set of program instructions, or software. Once familiar with hardware and software, the user can then apply the microcontroller to the problems easily. The pin diagram of the 8051 shows all of the input/output pins unique to microcontrollers: The following are some of the capabilities of 8051 microcontroller. ? Internal ROM and RAM ? I/O ports with programmable pins ? Timers and counters ? Serial datacommunication

The 8051 architecture consists of these specific features: ? 16 bit PC &data pointer (DPTR) ? 8 bit program status word (PSW) ? 8 bit stack pointer (SP) ? Internal ROM 4k ? Internal RAM of 128 bytes. ? 4 register banks, each

containing 8 registers ? 80 bits of general purpose data memory ? 32 input/output pins arranged as four 8 bit ports: P0-P3 ? Two 16 bit timer/counters: T0-T1Two external and three internal interrupt sources Oscillator and clock circuits THEORY-: Radio Frequency remote control) A handheld, wireless device used to operate audio, video and other electronic equipment using radio frequency (RF) transmission.

Unlike the more common infrared (IR) remotes, RF remotes do not require line of sight and do not have to be aimed at the equipment. In fact, RF remotes can be operated. RF Receivers (Base Stations) Are Required Since most equipment is IR based and comes with an IR sensor located on the front panel, the RF must wind up as IR. This is accomplished with an RF receiver, which is a base station and antenna, that accepts RF signals and converts them to IR. For use inside equipment cabinets, the receiver typically has an " IR blaster" that showers IR signals to all components by reflecting off the closed cabinet door.

The RF receiver also has sockets for several IR emitters (IR flashers) that are wired to, and pasted directly over, the IR sensors in the equipment for precise aiming. See IR remote control and RF. References-: The 8051 microcontroller and Embedded systems using assembly and C Muhammad Ali Mazidi, Janice Gillespie Mazidi 1. Keil Software, dScope Debugger, http://www. keil. com/ 2. National Instruments Multisim 10. 0 www. ni. com/multisim 3. www. 8051projects. info 4. www. 8051projects. net 5. www. dnatechindia. com 6. AT89c51 datasheet available at www. alldatasheets. com