

Title of the project	:	Wireless Stepper motor control using IR Communication
Software	:	Embedded C, Keil, Proload
Microcontroller	:	AT89S52
Power Supply	:	+5V, 500mA Regulated Power Supply
Display	:	LED 5mm, 16 X 2 LCD
Crystal	:	11.0592MHz
Controls	:	Stop, CLK, Counter CLK
Communication Device	:	Infra Red Sensor
Applications	:	Computer peripherals, business machines, Process control, machine tools and robotics
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Wireless Stepper Motor Control using RF Communication

Stepper motor is found with finds lot applications in computer peripherals, business machines, process control, machine tools and robotics. Especially in robotics and process control like silicon processing, I.C.Bonding and Laser trimming applications, it is necessary to control the stepper motor from remote places. This project is to control the stepper motor from remote place using RF modules. This deals with the design and development of hardware and software for Wireless Stepper motor control system.

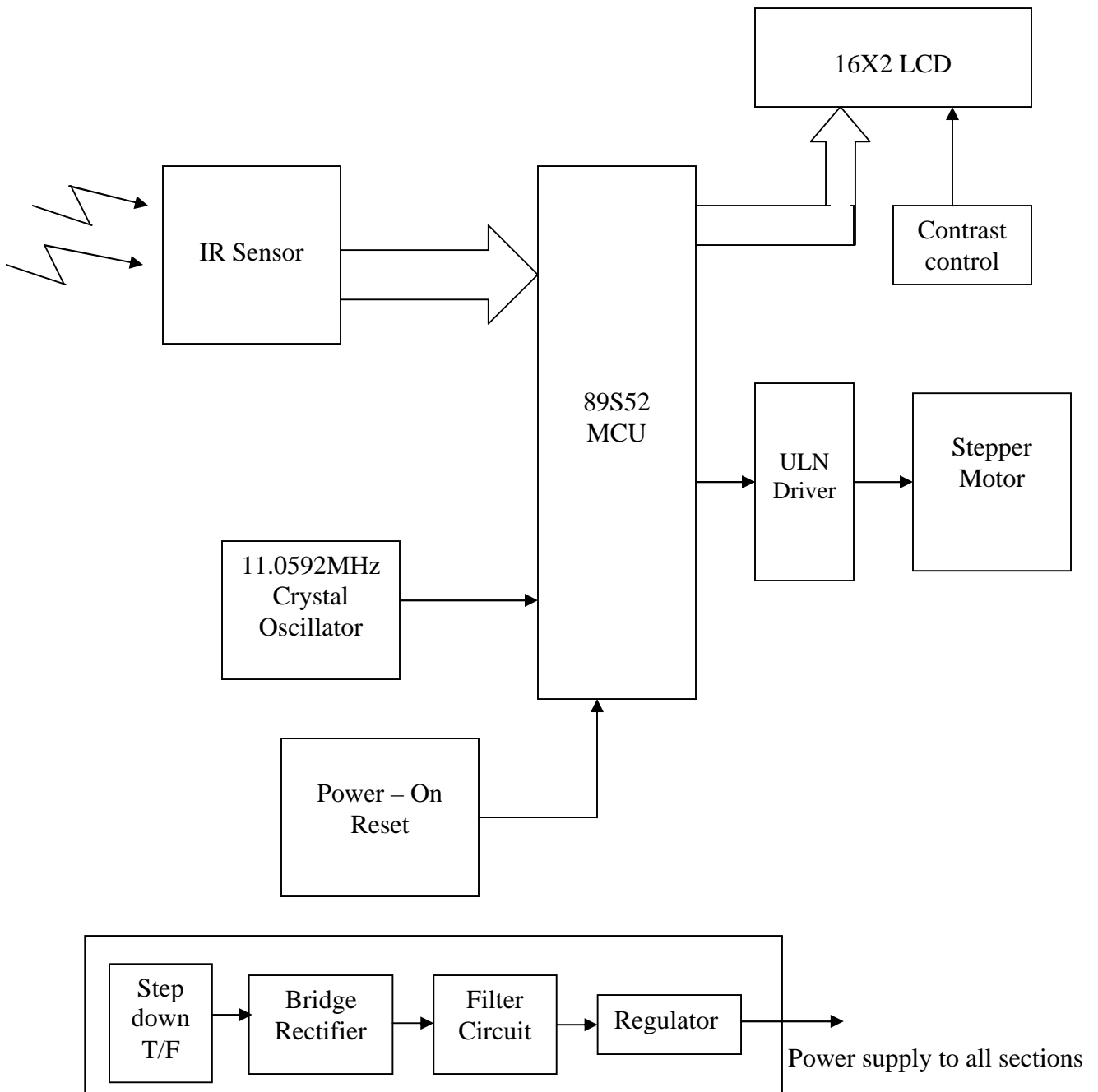
Three switches are used to control the direction of the stepper motor at the transmitter side. The status of these switches is transmitted using IR transmitter and received by the IR receiver. The microcontroller at the receiver will be continuously monitoring the status of these switches received from the decoder and performs the corresponding action.

The IR rays are transmitted through remote and a receiver named TSOP 1738 receives these rays. The sensor continuously reads the status of the switches, passes the data to the MCU. Now, it is the job of the controller to read the data and perform the corresponding action i.e., to rotate the stepper motor clockwise, anticlockwise or entirely stop it.

16 X 2 Liquid Crystal display (LCD) is provided at the receiver side to display the status of the stepper motor. ULN driver is used to drive the stepper motor.

This project uses regulated 5V, 500mA power supply. 7805 three terminal voltage regulator is used for voltage regulation. Bridge type full wave rectifier is used to rectify the ac out put of secondary of 230/12V step down transformer.

Block diagram:
Wireless Stepper Motor Control using IR Communication



Advantages:

Remote controlled

Simple operation

Less Power Consumption

Scopes for Advancements:

- Range can be increased using high power RF transmitter and receiver

Applications

- Robotics and Wireless Robot Arm
- Industries are using IR solutions for monitoring, process, control, inventory tracking, data links and bar code reading devices.
- Commercial wireless applications such as door announcers, security and access systems, gate control, remote activation, score board and paging systems.
- Consumer products including electronic toys, home security, gate and garage door openers, intercom, fire and safety systems and irrigation controllers
- Bottle filling systems, visitors counter and conveyer application

REFERENCE

Text Books:

Wireless Communication *By Cruis Leonardo*

IR Applications *By Morris Hamington*

Website:

www.howstuffworks.com

www.answers.com

www.radiotronix.com

www.WineYardProjects.com

Magazines:

Electronics for you

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