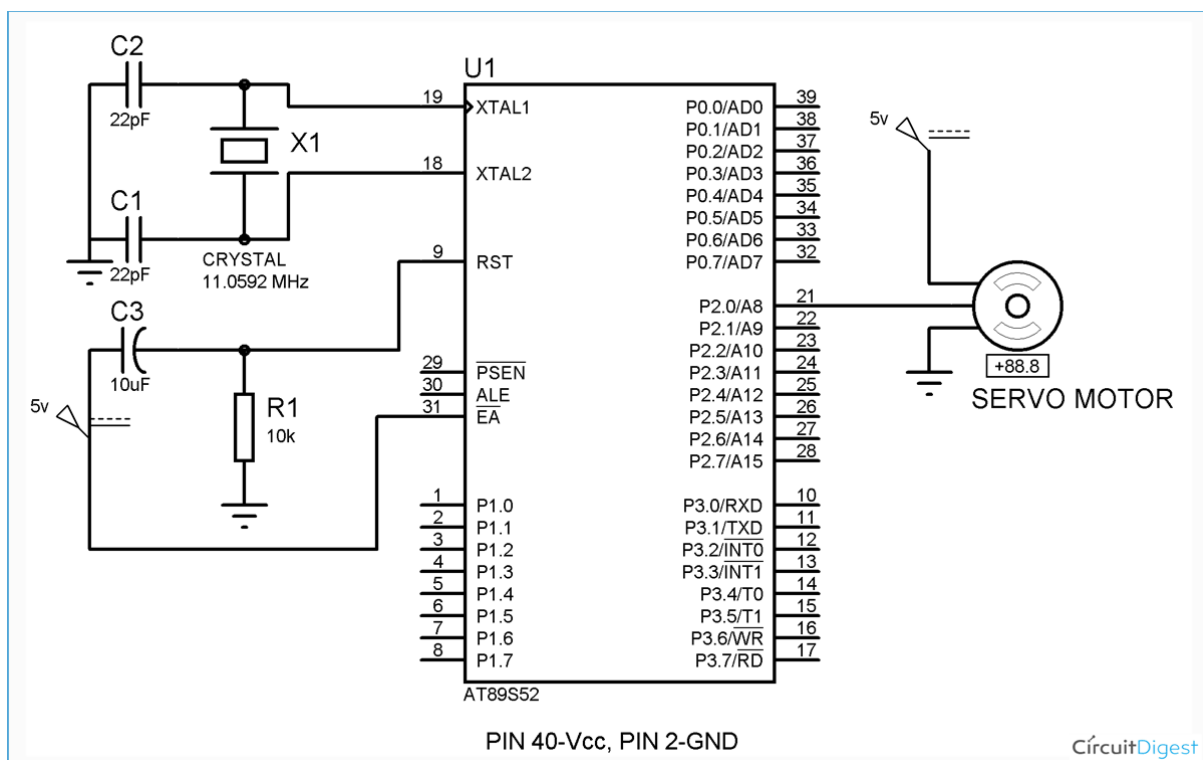


SERVO MOTOR INTERFACING WITH 8051 MICROCONTROLLER

A Servo motor is one of the most commonly used motor for precise angular movement. The advantage of using a servo motor is that the angular position of the motor can be controlled without any feedback mechanism. The servo motors are usually used in commercial and industrial applications. They are also widely used as in drive systems such as robots, aeroplanes etc.

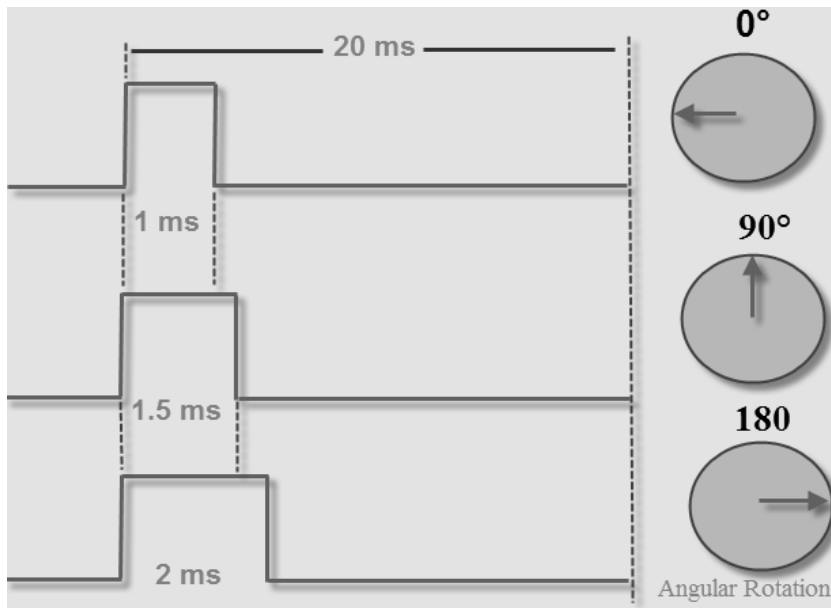
servo motor working principle and operation is very simple, it consisted three wires where two of them (Black and red) used to provide power and the third wire is used to provide control signal. Pulse Width Modulated (PWM) waves are used as control signals and the angular position is definite by the width of the pulse at the control input. In this topic, we are using a servo motor having angle of rotation from 0-180° and angular position can be controlled by varying the duty cycles among 1ms to 2ms.



The 11.0592MHz crystal oscillator is used to provide the clock pulsed to the microcontroller and 22pf ceramic capacitors used to stabilize the operation of crystal. 10KΩ and 10uf capacitor is used to provide the power on reset to the microcontroller.

Controlling a Servo Motor with Angle rotations

Servo motor working principle mainly depends upon duty cycles. It uses Pulse Width Modulated (PWM) waves as control signals. The angle of rotation is resolute by the pulse width of the control pin. Here the servo motor used for angle of rotation from 0 to 180 degrees. We can control the precise angular position by varying the pulse among 1ms to 2ms.



Servo Motor Applications

- It is used in Press machines for cutting the pieces to size
- It is used in the Sugar filling station
- It is used in Labeling applications
- It is used Packing system with random timing function
- It is used Used in aeroplanes

Advantages of Servo Motor

- If a motor gets heavy load the driver will increase the current to the motor coil as its efforts to rotate the motor. Mainly, there is no out-of-step condition.
- High-speed operation is possible by the servo motors.