

1.

Detect which button of the IR remote controller is pushed and write it to the serial port. (1p)

2.

a) Make the stepper motor rotate back and forth full rotations. (1p)

b) Make an IR controlled stepper motor with following controls: two buttons which rotate the motor clockwise/counterclockwise when the button is being pressed and two buttons which increase/decrease the speed. (You might want to use some other library than "Stepper".) (1p)

3.

Make your favourite poem scroll on the LCD. Backlight the screen and make the contrast adjustable with a potentiometer. (1p)

4.

a) Set the RTC to the correct time and display the time and date on the LCD. (1p)

b) Mod your code from the previous problem so that the microcontroller is in power-down mode and it updates the time only when a button is pressed. Estimate roughly how much is the average current consumption. How long would a 1000mAh battery last with and without the power-down mode? Consider only the current consumption of the microcontroller. (1p)