College of Science and Computer Engineering

Department of Computer Science & Artificial Intelligence
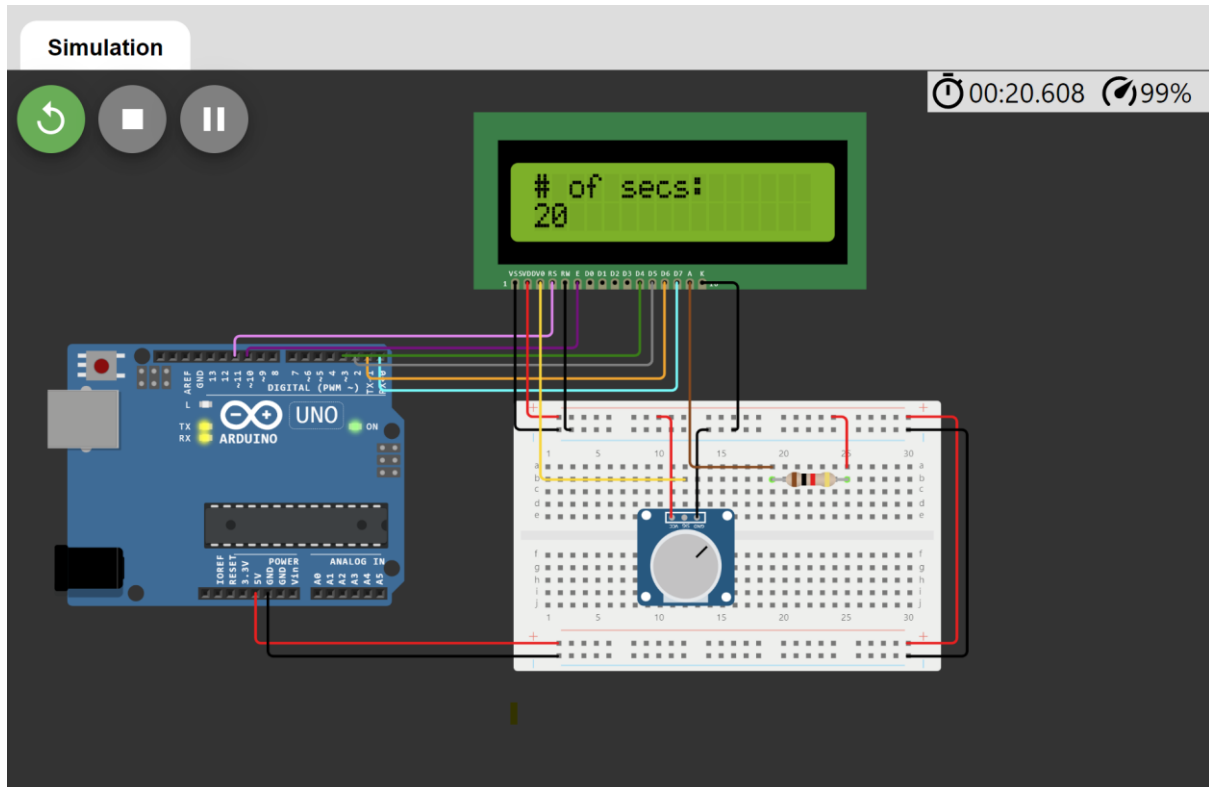
CCAI 436

Advanced Topics in Artificial Intelligence

Lab#7

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2023

Lab task -software-

- *Code:*

```
/*
 The circuit:
* LCD RS pin to digital pin 11
* LCD Enable pin to digital pin 10
* LCD D4 pin to digital pin 3
* LCD D5 pin to digital pin 2
* LCD D6 pin to digital pin 1
* LCD D7 pin to digital pin 0
* LCD R/W pin to ground
* LCD VSS pin to ground
* LCD VCC pin to 5V
* 10K resistor:
* ends to +5V and ground
* wiper to LCD VO pin (pin 3)
*/
// include the library code:
#include <LiquidCrystal.h>


// initialize the library with the numbers of the interface pins
```
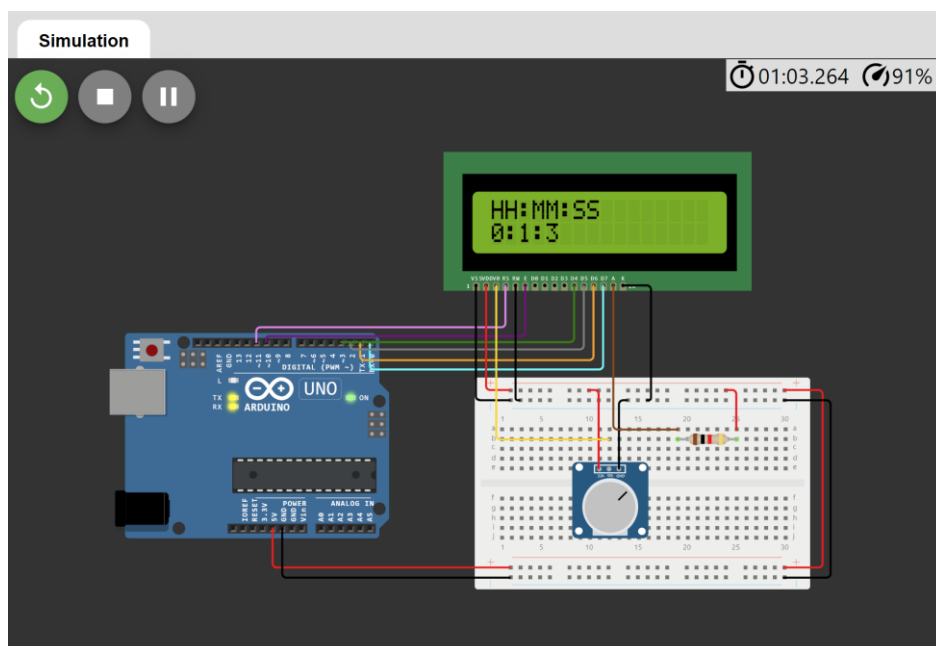
```
LiquidCrystal lcd(11, 10, 3, 2, 1, 0);

void setup() {
 // set up the LCD's number of columns and rows:
 lcd.begin(16, 2);
 // Print a message to the LCD.
 lcd.print("# of secs:");
}
void loop() {
 // set the cursor to column 0, line 1
 // (note: line 1 is the second row, since counting begins with 0):
 lcd.setCursor(0, 1);
 // print the number of seconds since reset:
 lcd.print(millis() / 1000);
}
```
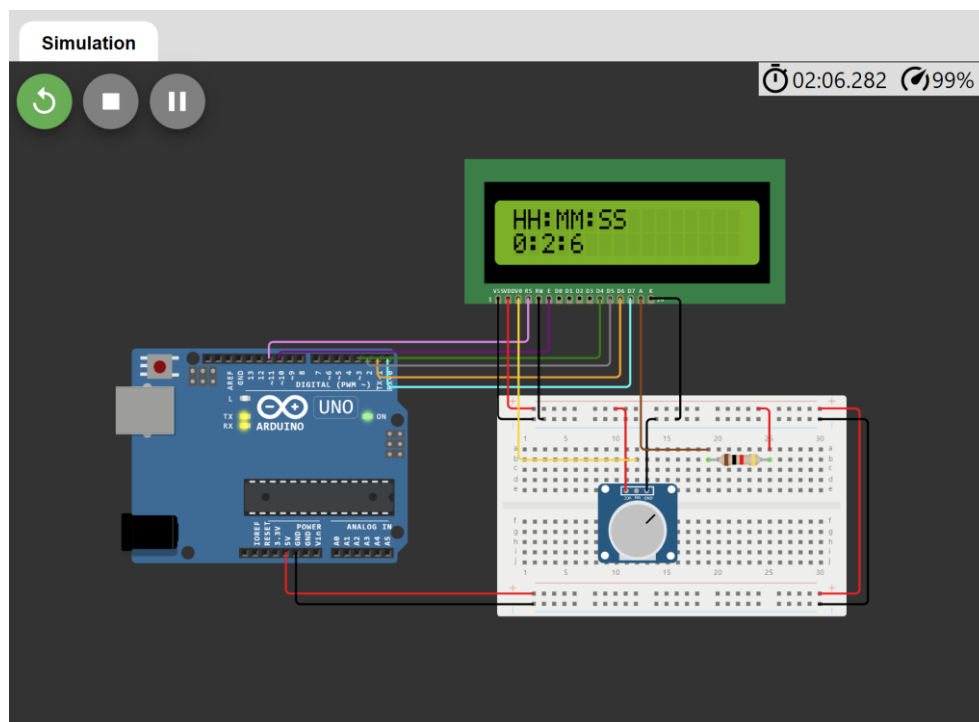
Exercise 7.1

Modify Program 7.1 to display the time since reset in hours, minutes and seconds using the format "HH :MM :SS".

- *Code:*

```
/*
 The circuit:
* LCD RS pin to digital pin 11
* LCD Enable pin to digital pin 10
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*/
// include the library code:
#include <LiquidCrystal.h>

// initialize the library with the numbers of the interface pins
LiquidCrystal lcd(11, 10, 3, 2, 1, 0);

void setup() {
```

```
// set up the LCD's number of columns and rows:
lcd.begin(16, 2);
// Print a message to the LCD.
lcd.print("HH:MM:SS");
}
void loop() {
// set the cursor to column 0, line 1
// (note: line 1 is the second row, since counting begins with 0):
lcd.setCursor(0, 1);
// print the number of seconds since reset:
lcd.print((millis() / 3600000)%23);
lcd.print(":");
lcd.print((millis() / 60000)%60);
lcd.print(":");
lcd.print((millis() / 1000)%60);
lcd.println();
}
```

- *Code link:* [Lab 7 task](#)