Bahria University

Karachi Campus

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LAB EXPERIMENT NO.

**9**

LIST OF TASKS

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| --- | --- |
| TASK NO | OBJECTIVE |
| 1 | Using the Concept of SPI communication, write a program to control a LED on slave arduino by a SPDT switch on master arduino. Attach proteus simulation results and arduino code. |
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Submitted On:

29 December 2023

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(Date: DD/MM/YY)

**Task 1:** Using the Concept of SPI communication, write a program to control a LED on slave arduino by a SPDT switch on master arduino. Attach proteus simulation results and arduino code.

**Solution:**

**Master:**#include <SPI.h>

const int switchPin = 2;

void setup() {

  Serial.begin(9600);

  pinMode(switchPin, INPUT);

  SPI.begin();}

void loop() {

  int switchState = digitalRead(switchPin);

  SPI.beginTransaction(SPISettings(1000000, MSBFIRST, SPI\_MODE0));

  digitalWrite(SS, LOW);

  SPI.transfer(switchState);

  digitalWrite(SS, HIGH);

  SPI.endTransaction();

  delay(500); }

**Slave:**

#include <SPI.h>

const int ledPin = 7;

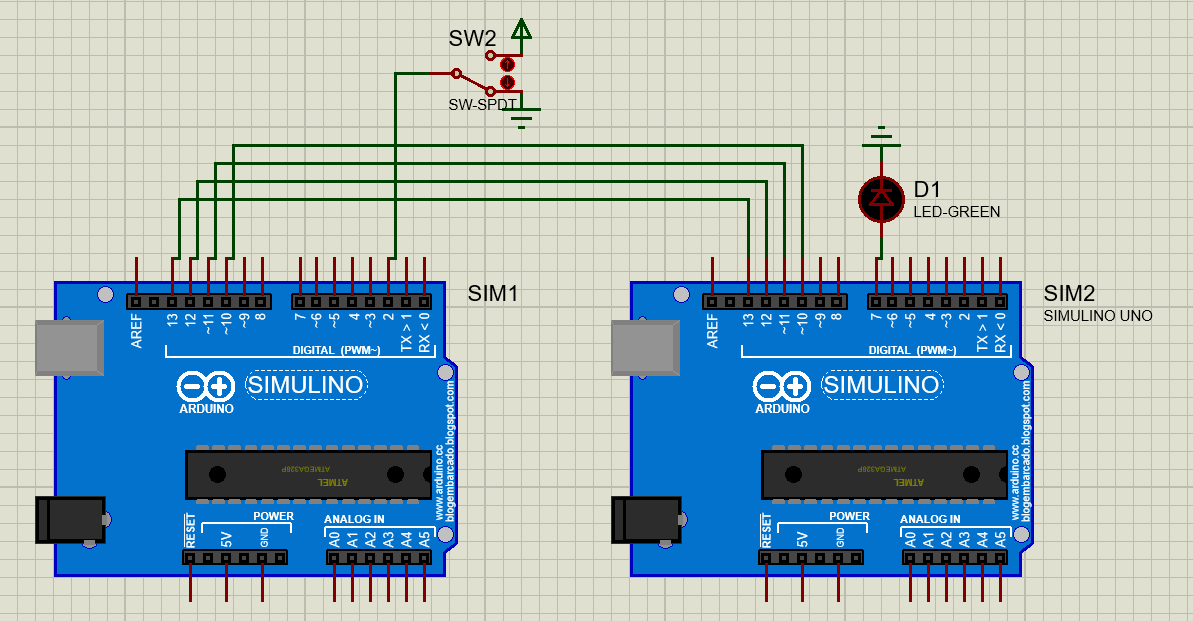
void setup() {

  Serial.begin(9600);

  pinMode(ledPin, OUTPUT);

  SPI.begin();}

void loop() {

  SPI.beginTransaction(SPISettings(

1000000, MSBFIRST, SPI\_MODE0));

  digitalWrite(SS, LOW);

  int switchState = SPI.transfer(0);

  digitalWrite(SS, HIGH);

  SPI.endTransaction();

  if (switchState == HIGH) {

    digitalWrite(ledPin, HIGH);

  } else {

    digitalWrite(ledPin, LOW);}}

**Output:**