Bismillahhir Rahmanir Rahim

আন্তর্জাতিক ইসলামী বিশ্ববিদ্যালয় চট্টগ্রাম

الجامعة الإسلامية العالمية شيتاغونغ

International Islamic University Chittagong

Project Proposal

Submission Date & Day

18 October, 2022 (Tuesday)

Course Title: Electrical Drives and Instrumentation
Course Code: EEE-2422

Submitted to-

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Section: A, 5th Sem., Department of CSE, IIUC

Proposal No: 01

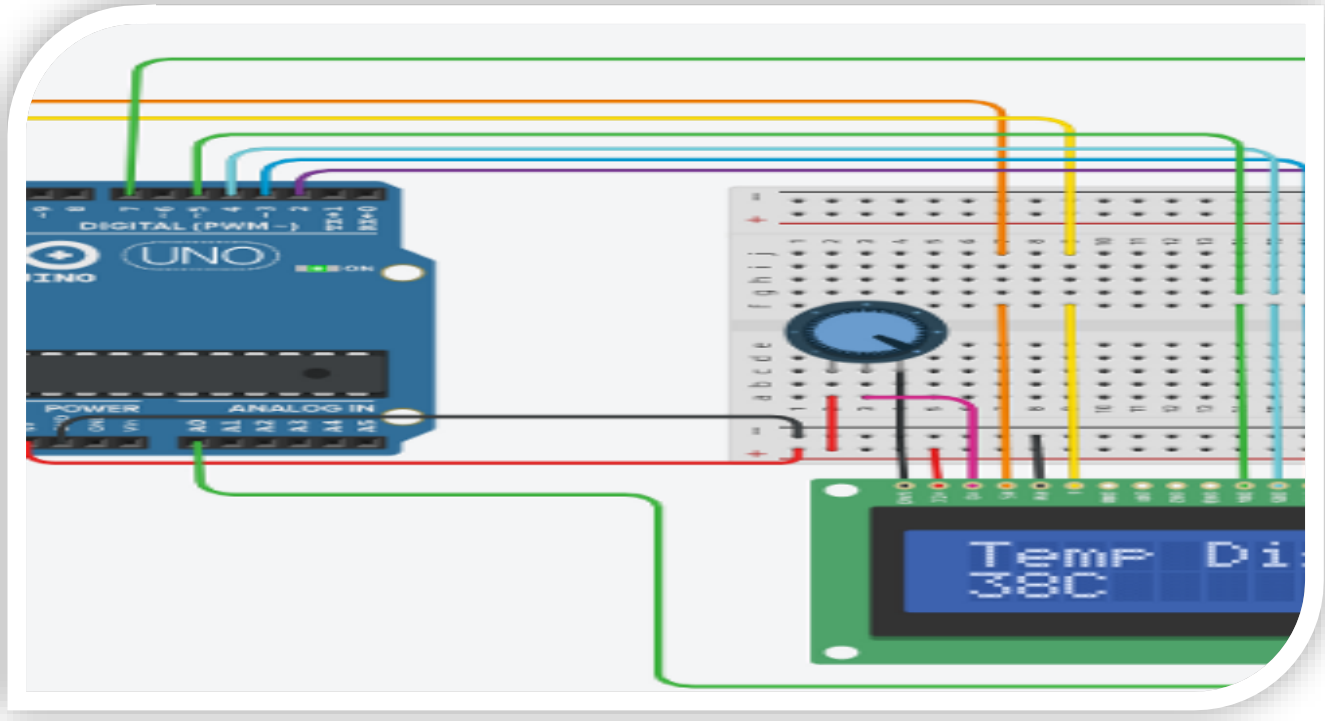
Proposal Name: Smart Temperature Alert System

Theory/ Working Principle: Temperature sensors and LCD can serve as a simple mechanism in different situations such as room temperature monitoring and even plant monitoring or any place that considers temperature as an important element! We will use it as an alert system to get notified when the temperature is above 50 Degree Celsius alarm will go on and a specific tone will be given as output for notification and the LCD 16*2 will show the temperature with the situation as Normal, Cold or Too hot.

Equipment's:

- ✓ Arduino Nano R3 × 1
- ✓ STS21 High Accuracy Temperature Sensor × 1
- ✓ I²C Cable × 1
- ✓ I2C Shield for Arduino Nano × 1

Circuit Diagram:



Cost Analysis:

- Arduino Nano R3 × 1 - 650 TK
- STS21 High Accuracy Temperature Sensor × 1 - 400 TK
- I²C Cable × 1 - 100 TK
- I2C Shield for Arduino Nano × 1 - 350 TK

In This Project, Our Total Estimated Cost Is 1500 TK To 1800 TK.

Application: In Smart Temperature Alert System, Temperature Sensor can be employed in systems which require high accuracy temperature monitoring. It can be incorporated in various computer equipment, medical equipment and industrial control systems with the requisite of temperature measurement with proficient accuracy.

Proposal No: 02

Proposal Name: Speed Test of a Moving Object

Theory/ Working Principle: Device is very simple and consist only a few components:

- Arduino Nano microcontroller
- LCD display
- Ultrasonic sensor
- and LED diode

For that purpose, we need to take two distance measurements in a short time apart and we have:

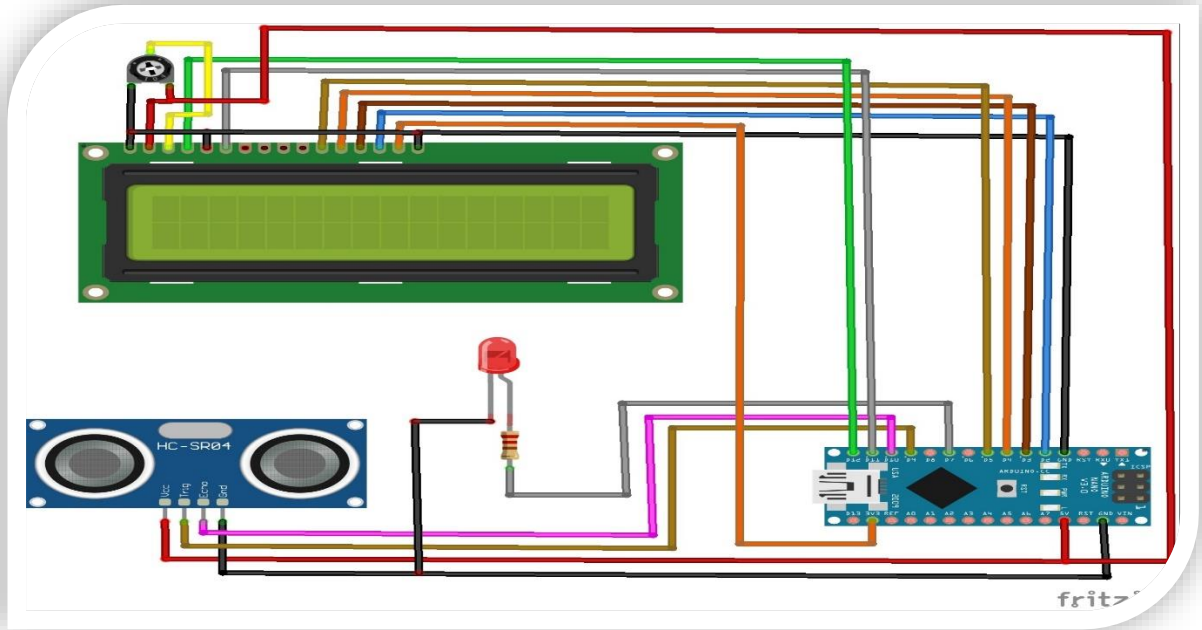
distance2 - distance1 = distance speed at a given time

If we make the measurements in a time period of 1 second, then we get the speed of movement of the object in cm/s. The basic code is taken from the Arduino cc forum and I just added an LCD display for a visual representation of the results.

Equipment's:

- ✓ Arduino Nano R3 x 1
- ✓ Adafruit Standard LCD - 16x2 White on Blue x 1
- ✓ Ultrasonic Sensor - HC-SR04 (Generic) x 1
- ✓ LED (generic) x 1
- ✓ Resistor 330-ohm x 1
- ✓ Single Turn Potentiometer- 10k ohms x 1

Circuit Diagram:



Cost Analysis:

- Arduino Nano R3 x 1 -650 TK
- Adafruit Standard LCD - 16x2 White on Blue x 1 -250 TK
- Ultrasonic Sensor - HC-SR04 (Generic) x 1 - 95 TK
- LED (generic) x 1 - 10 TK
- Resistor 330-ohm x 1 - 5 TK
- Single Turn Potentiometer- 10k ohms x 1 - 30 TK

In This Project, Our Total Estimated Cost Is 900 TK To 1200 TK.

Application: The goal of measuring speed may vary based on the application, including the safer operation of vehicles; calculation of power as a product of speed and force; evaluation of driver travel routes based on fuel efficiency and travel time; fuel level tracking to prevent fuel theft; walking speed of diseased persons.

Proposal No: 03

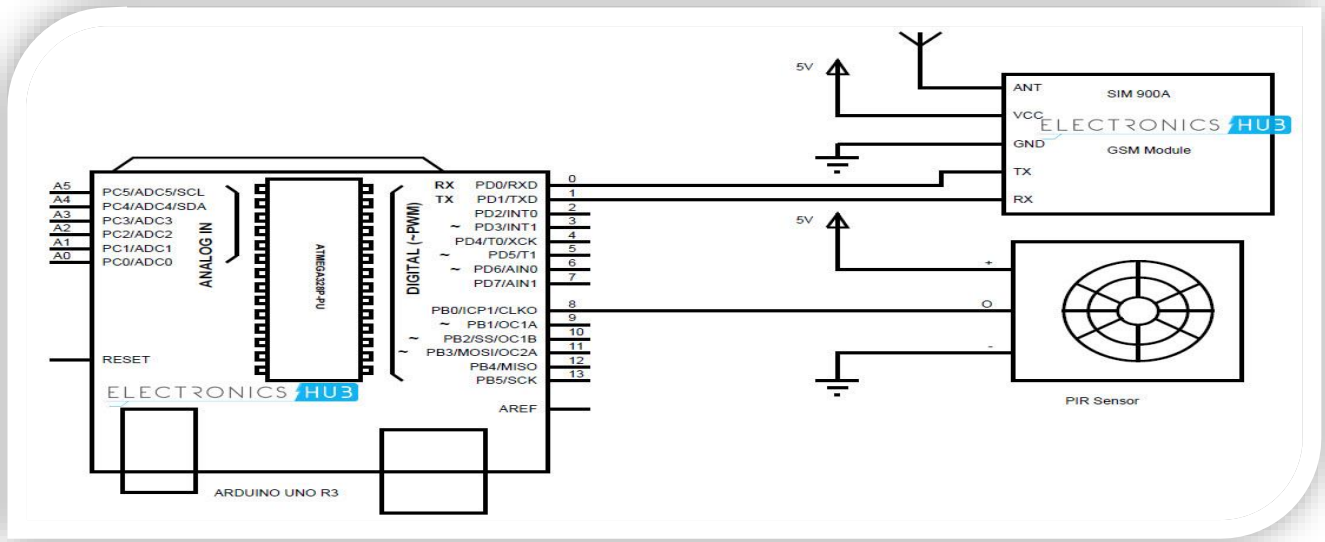
Proposal Name: Home Security Alarm System

Theory/ Working Principle: Home Security Systems are an important feature of modern residential and office setups. Home security systems must be affordable, reliable and effective. Modern complex home security systems include several security features like fire, intruders, electronic door lock, heat, smoke, temperature, etc. Some security systems may be a combination of all the security measures. we designed a simple but very efficient home security that has a function of calling the homeowner on his/her mobile number in case of an intruder alert.

Equipment's:

- ✓ Arduino UNO x 1
- ✓ PIR Motion Detection Sensor x 1
- ✓ SIM 900A (or any other) GSM Module with SIM inserted x 1

Circuit Diagram:



Cost Analysis:

- Arduino UNO x 1 – 950 Tk
- PIR Motion Detection Sensor x 1 – 105 Tk
- SIM 900A (or any other) GSM Module with SIM inserted x 1 –1350 Tk

In This Project, Our Total Estimated Cost Is 2400 TK To 2700 TK.

Application: The Top 8 Reasons to Get a Home Security System

- Protects valuables.
- Deters crime.
- Allows remote access to your home.
- Lowers homeowner's insurance.
- Notifies you of fire or gas problems.
- Helps keep tabs on kids.
- Improves electricity management.
- Makes room for peace of mind.

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