Assignments for the Arduino Uno

In each group you got a box with sensors, displays and other accessories for The Arduino, try them out, and find out what you can use to control the train, speed, direction and eventually the sound.

You can find a lot of information on all the accessories on the internet, try them out, ant think what of the devices can be used to control the trains, lights and switches. Everything is about to control a communication protocol DCC.

The link to find information about all the modules

http://www.instructables.com/id/Arduino-37-in-1-Sensors-Kit-Explained/

 Link to help you on Morse code receiver:

https://create.arduino.cc/projecthub/achindra/morse-code-transceiver-ae38?ref=platform&ref_id=424_trending____&offset=1

Other useful links:

https://playground.arduino.cc/

https://www.arduino.cc/en/Tutorial/LibraryExamples

https://www.arduino.cc/en/Tutorial/BuiltInExamples

https://create.arduino.cc/projecthub

C PROGRAMMING

Assignment A10
The Light measurement module

Connect the module to the arduino, measure the Light and display the value in the Serial Monitor

Assignment A11
The Color SMD RGB LED module

Connect the module to the Arduino, generate the color RED, GREEN and BLUE.

By help of a loop make all the color combinations.

With the LED you can make a Morse code transmitter, and with the Light measurement module you can make a Morse code receiver.

Assignment A12
The Color sensor module TCS 3200

Connect the module to the Arduino, check the color the Color SMD LED is lighting with.

Eventually by the help of two Arduinos.

Assignment A13
The Adjustable Potentiometer Rotary Angel Sensor module

Connect the module to the Arduino, read the potentiometer value, and display in the

Serial Monitor. Try to make the span from 0 to 64.

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Assignment A14
The 3x4 Keypad

Connect the 7 lines to 7 digital ports, decide whatever you want 3 or 4 as output ports,

The other as input ports. Make a program to tell which button you press.

Make a 4 digit code, when you pres the code the LED on pin 13 goes on, next time you

Press the code the LED goes off.

Assignment A15
The IR sensor module

Connect the module to the Arduino, by help of an remote control.

Find out which button you are pressing.

Assignment A16
The infrared obstacle avoidance sensor module

Connect the module to the Arduino, check that you are able to see if an obstacle is close to the Sensor. Are you able to see when at train is passing?

Are you able to measure the speed of a train with this module?

Assignment A17
The ultra sound distance measurement module

Connect the module to the Arduino, display the actual distance to an object in the Serial Monitor. Are you able to measure the speed of a train with this module?

Assignment A18
The 1602 i2c 16x2 display

Connect the 4 lines to the Arduino, se if you are able to write text on the display.

Assignment A19
The Display shield with buttons

Place the shield on the Arduino, see if you are able to change text from the five buttons.

Assignment A20
The Blue Tooth communication module HC-06

Connect the module to the Arduino, see if you can get connected to another Blue Tooth Device.