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//Basic Remote Control Car - Bill Tarpy - North East CoderDojo  17/01/2015
//Feel free to use this software as a basis for your own.
#include <SoftwareSerial.h> //the library for seial communication
#include <AFMotor.h> // the library for the Adafruit L293 Arduino Motor Shield
int incomingByte = 0; // for incoming serial data
int speed_min = 135; //the minimum "speed" the motors will turn - take it lower and motors don't turn
int speed_max = 255; //the maximum "speed" the motors will turn – you can’t put in higher

int speed_left = speed_max; // set both motors to maximum speed
int speed_right = speed_max;

//as we added a Motor Shield Library we can just use the following code to define our M1 and M2 motors and their PWM frequency
//the library takes care of all the complexity of the physical interface the Arduino uses to talk to the shield and the motor
AF_DCMotor motor_left(1, MOTOR12_1KHZ); // create motor #1, 1KHz pwm
AF_DCMotor motor_right(4, MOTOR12_1KHZ); // create motor #2, 1KHz pwm

void setup() {
Serial.begin(9600); // set up Serial library at 9600 bps - this is the speed the serial interface will work at
Serial.println("Motor test!");// display message for test purposes when connected to a serial monitor
}

void loop() {
  //this is our repeating loop - that will go round and round until we switch the Arduino off
  motor_left.setSpeed(speed_left); // minimum speed 135   max speed 255
motor_right.setSpeed(speed_right); // minimum speed 135   max speed 255
```

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//first check if there is anything on the serial interface
//we are using the Arduino's default serial interface (pins 0 and 1)so no need to define these
   if (Serial.available() > 0) {
   // read the incoming byte:
   incomingByte = Serial.read();
   }


  // if there is something on the serial interface it is read and assigned to incomingByte
  // we then use a SWITCH (case) statement which, depending on incomingByte, does different things
  // it runs the left and right motors to produce movement Forward, Backward, Left, Right or Stop
  //that's all there is to it!


  switch(incomingByte)
  {
    case 'S':
       // stop all motors
     { motor_left.run(RELEASE); // stopped
      motor_right.run(RELEASE); // stopped
      Serial.println("Stop\n"); //display message for test purposes when connected to a serial monitor
      incomingByte='*';}


    break;


    case 'F':
      // turn it on going forward
    {  motor_left.run(FORWARD);


      Serial.println("Forward\n");//display message for test purposes when connected to a serial monitor
```

```
  incomingByte='*';}
 break;

  case 'B':
   // turn it on going backward
 {  motor_left.run(BACKWARD);

   Serial.println("Backward\n");//display message for test purposes when connected to a
serial monitor
  incomingByte='*';}
 break;

 case 'R':
 // turn right
 {
  motor_right.run(FORWARD);
  Serial.println("Rotate Right\n");//display message for test purposes
  incomingByte='*';}
 break;


  case 'L':
   // turn left
  {
  motor_right.run(BACKWARD);
  Serial.println("Rotate Left\n");//display message for test purposes
  incomingByte='*';}
 break;

 case '1':
   // Put what you like in here - for example - change the motor speeds
```

```
     { speed_left = speed_min; // set both motors to minimum speed
      speed_right = speed_min;
      Serial.println("Speed 1\n");//display message for test purposes
      incomingByte='*';}
    break;


   case '2':
       // Put what you like in here - for example - turn on some LED lights on the car
     {
      Serial.println("Lights on\n");//display message for test purposes


      //why not use the motor sheild's spre motors - M3 and M4  - to turn lights on and off
      //you would need to define M3/4 in your program setup, and a few extra veriables to hold values
      //then FORWARD and BACKWARD would send a voltage one way then the other through the M3 and M4 terminals as you require


      incomingByte='*';}
    break;
  }
}
//-------------------------------------------------------------------------------------------------------------------
```