Shaft encoder example using Interrupt pin

In this new controller board 2 interrupt pins are available to use for application like shaft encoder.

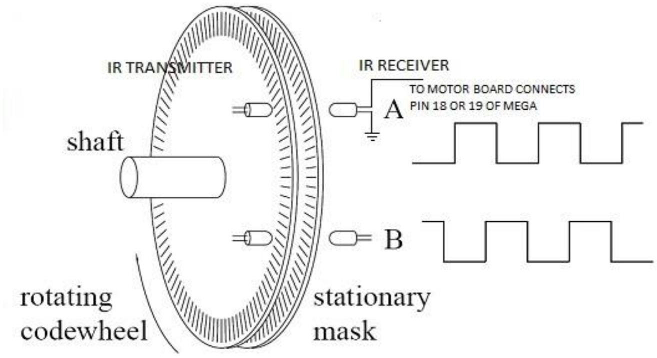

Figure 1 Shows a sample rotary encoder to interface with controller board

Controller board has a motor driver board where 2 pins are available to use for hardware based interrupts. These pins are Pin 18 and Pin 19 of microcontroller. Using interrupt associated with the pins will allow the program counting the number of pulses received on real time at the interrupt pin. This interrupt function will let the program running in the expected order as structured.
Example 1 shows how to use a shaft encoder using attachinterrupt(pin number, interrupt service routine, mode) method.

Syntax: attachInterrupt(digitalPinToInterrupt(pin), ISR, mode);

Parameters:

interrupt: the number of the interrupt (int), use digitalPinToInterrupt(pin), rather than place an interrupt number directly into your arduino sketch.

ISR: the ISR to call when the interrupt occurs; this function must take no parameters and return nothing. This function is sometimes referred to as an interrupt service routine.

Mode: defines when the interrupt should be triggered. Four constants are predefined as valid values:
-LOW to trigger the interrupt whenever the pin is low,
-CHANGE to trigger the interrupt whenever the pin changes value
-RISING to trigger when the pin goes from low to high,
-FALLING for when the pin goes from high to low.

For more information, please see the link
https://www.arduino.cc/en/Reference/AttachInterrupt

Example 1:

```
#include <LEGOLCD.h> //including the library for display
int shaftpin =18; // pin number being used for interrupt service
volatile int shaftCounter = 0; //counter for counting pulses

void setup() {
           lcd.begin(16,2);     // initialize the lcd for 20 chars 4 lines and turn on backlight
           pinMode(shaftpin, INPUT_PULLUP); // setup the pin as pull up to
           //attaching interrupt for pin shaftpin or pin 18
           // it will sense any chnage like logic High to Low or Low to high
           attachInterrupt(digitalPinToInterrupt(shaftpin), count, CHANGE);
}
void loop(){
           lcd.setCursor(0,0); //Start at character 4 on line 0
           lcd.print("Counter value");
          lcd.print(shaftCounter);
          delay(50);
 }

void count(){
   shaftCounter++;
}
```