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/*
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   DIY Project
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*/
#include <LiquidCrystal.h>      // library for LCD 16*2 Display
LiquidCrystal lcd(12,11,5,4,3,2);     // Declaration of all digital pins of lcd
display
#define pi 3.1416
int hall_sensor = 6;           // Declaration of hall effect sensor && digital
output at pin 6
int state1=0;
int state2=0;
int laststate = 0;
int counter = 0;
int timer1=0;
int timer2=0;
int timer3=0;
float v=0;   // velocity
float d = 0.72;   //diameter of bicycle wheel
float circumference = d*pi;
int brakelight = 8;


void setup()
{
 pinMode(hall_sensor,INPUT);
 pinMode(brakelight,OUTPUT);
  lcd.begin(16,2);
  lcd.clear();
  lcd.print("Let's");
  lcd.setCursor(0,1);
  lcd.print("Ride");
  delay(2000);



}

void loop()
{
   if(2>v)       // minimum thresold speed (2 km/hr) for brakelight
  {
digitalWrite(brakelight,HIGH);
  }
```

```
 if(2<v)
  {
digitalWrite(brakelight,LOW);
  }

state1=digitalRead(hall_sensor);      //Hall_effect sensor give input value 0 when
it detect magnetic field
delay(10);
state2=digitalRead(hall_sensor);
        if (state1 == state2) {
              if (state1 != laststate){
                    if (state1 == HIGH) {
                        counter = counter + 1;
                        velocity();
                     }
               }
         }
        laststate = state1;
  LCD();

}
void velocity(){
  if(counter%2 == 0){
    timer1=millis();
  }else{
    timer2=millis();
}
  timer3=abs(timer1-timer2);         // timer3 count the time of one rotation  and
use absolute value function (abs();)
  v = circumference/(timer3)*1000*(18/5);
}

void LCD(){
  lcd.clear();
   lcd.print("Sumit Nirmal");
             lcd.setCursor(0,1);
            lcd.print("Speed=");
             lcd.print(v);
           lcd.print("Km/hr");
           return;
}
```