**Lösungen zum Arbeitsblatt „Adaptive cruise control (ACC)“**

**Aufgabe 1**

srel = s[1] - s[2];

vrel = srel/ (t\*0.05);

**Aufgabe 2**

for (int i = 1; i <= 2; i++){

}

**Aufgabe 3**

int trigger=6;

int echo=7;

byte dcmot=3; //Ausgang DC Motor

long dauer=0;

long srel;

long vrel;

long s[3]; //Array Messung 1 und Messung 2

int t=800; //Zeit in ms

byte v=100; //Geschwindigkeit in m/s

void setup()

{

Serial.begin(9600);

pinMode(dcmot, OUTPUT);

pinMode(trigger, OUTPUT);

pinMode(echo, INPUT);

analogWrite(dcmot,v);

}

void loop()

{

//For-Schleife mit zwei Durchgängen

for (int i = 1; i <= 2; i++){

digitalWrite(trigger,LOW);

delay(10);

digitalWrite(trigger, HIGH);

delay(10);

digitalWrite(trigger,LOW);

dauer = pulseIn(echo, HIGH);

s[i] = 0.001\*dauer\*343/2;

delay(t);

}

srel = s[1] - s[2];

vrel = srel/ (t\*0.05);

v = v - vrel;

analogWrite(dcmot,v);

//Variablenausgabe an Serial Monitor

Serial.print(srel);

Serial.println(" [mm] srel ");

Serial.print(vrel);

Serial.println(" [m/s] vrel ");

Serial.print(v);

Serial.println(" [m/s] v ");

Serial.println();

}