**浙江大学城市学院实验报告**

课程名称 计算机综合实践（一）

实验项目名称 Day03

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**一、实验目的：**

1、电机工作原理

2、小车行走原理

**二、实验内容：**

本次实验注意事项：

1）直流电机驱动需要较大电流，USB数据线提供的电源无法驱动电机。

正确的操作流程：

用数据线上传程序后，拔掉数据线，打开电池电源开关，用电池电源驱动小车。

2）由于Arduino上电会自动运行上一次程序，如果上一次程序就是小车运行程序，那么电机的大电流会拉低电压，导致数据线无法再上传新程序。

解决办法：在每一个需要运转的程序开始之前，加入按键控制，按下按键，电机开始运转。

9）电机控制实验

A）让电机旋转

B）控制电机速度

C）控制直流电机的旋转方向

10）小车行进、后退、停止、左转、右转、原地左转圈、原地右转圈实验

**三、实验步骤：**

1）自行完成以上实验内容

2）贴代码

9）电机控制实验

A）让电机旋转

B）控制电机速度

C）控制直流电机的旋转方向

int Left\_f = 8;

int Left\_s = 7;

int Right\_f = 2;

int Right\_s = 4;

int Left\_go = 6;

int Right\_go = 5;

int key=A0;

void setup() {

// put your setup code here, to run once:

pinMode(Left\_f, OUTPUT);

pinMode(Left\_s, OUTPUT);

pinMode(Right\_f, OUTPUT);

pinMode(Right\_s, OUTPUT);

pinMode(Left\_go, OUTPUT);

pinMode(Right\_go, OUTPUT);

pinMode(A0, INPUT);

digitalWrite(key, HIGH);

}

void key\_scan()

{

while (digitalRead(key)); //当按键没有被按下一直循环

while (!digitalRead(key)) //当按键被按下时

{

delay(10); //延时10ms

if (digitalRead(key) == LOW)//第二次判断按键是否被按下

{

delay(100);

while (!digitalRead(key)); //判断按键是否被松开

}

}

}

void go () {

digitalWrite(Left\_f, HIGH);

digitalWrite(Left\_s, LOW);

digitalWrite(Right\_f, HIGH);

digitalWrite(Right\_s, LOW);

analogWrite(Left\_go, 50);

analogWrite(Right\_go, 50);

}

void loop() {

// put your main code here, to run repeatedly:

key\_scan();

while(1){

go();

}

}10）小车行进、后退、停止、左转、右转、原地左转圈、原地右转圈实验

void go\_straight() {

digitalWrite(Left\_f, HIGH);

digitalWrite(Left\_s, LOW);

digitalWrite(Right\_f, HIGH);

digitalWrite(Right\_s, LOW);

analogWrite(Left\_go, 50);

analogWrite(Right\_go, 50);

}

void Stop() {

digitalWrite(Left\_f, LOW);

digitalWrite(Left\_s, LOW);

digitalWrite(Right\_f, LOW);

digitalWrite(Right\_s, LOW);

analogWrite(Left\_go, 0);

analogWrite(Right\_go, 0);

}

void turn\_left() {

digitalWrite(Left\_f, LOW);

digitalWrite(Left\_s, HIGH);

digitalWrite(Right\_f, HIGH);

digitalWrite(Right\_s, LOW);

analogWrite(Left\_go, 0);

analogWrite(Right\_go, 50);

}

void turn\_right() {

digitalWrite(Left\_f, HIGH);

digitalWrite(Left\_s, LOW);

digitalWrite(Right\_f, LOW);

digitalWrite(Right\_s, HIGH);

analogWrite(Left\_go, 50);

analogWrite(Right\_go, 0);

}

void back() {

digitalWrite(Left\_f, LOW);

digitalWrite(Left\_s, HIGH);

digitalWrite(Right\_f, LOW);

digitalWrite(Right\_s, HIGH);

analogWrite(Left\_go, 50);

analogWrite(Right\_go, 50);

}

void turn\_left\_stop() {

digitalWrite(Left\_f, LOW);

digitalWrite(Left\_s, HIGH);

digitalWrite(Right\_f, HIGH);

digitalWrite(Right\_s, LOW);

analogWrite(Left\_go, 50);

analogWrite(Right\_go, 50);

}

void turn\_right\_stop() {

digitalWrite(Left\_f, HIGH);

digitalWrite(Left\_s, LOW);

digitalWrite(Right\_f, LOW);

digitalWrite(Right\_s, HIGH);

analogWrite(Left\_go, 50);

analogWrite(Right\_go, 50);

}

3）运行效果拍照 或者 录像

**四、每日收获：**

记录今日学习感想。

一开始忘了加按钮程序，导致无法连接找到串口，转圈的过程不是那么流畅，不过总体还行，期待接下来的巡线实验。