Lecture (10)
Practical Applications on Arduino Uno Board - II

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Agenda

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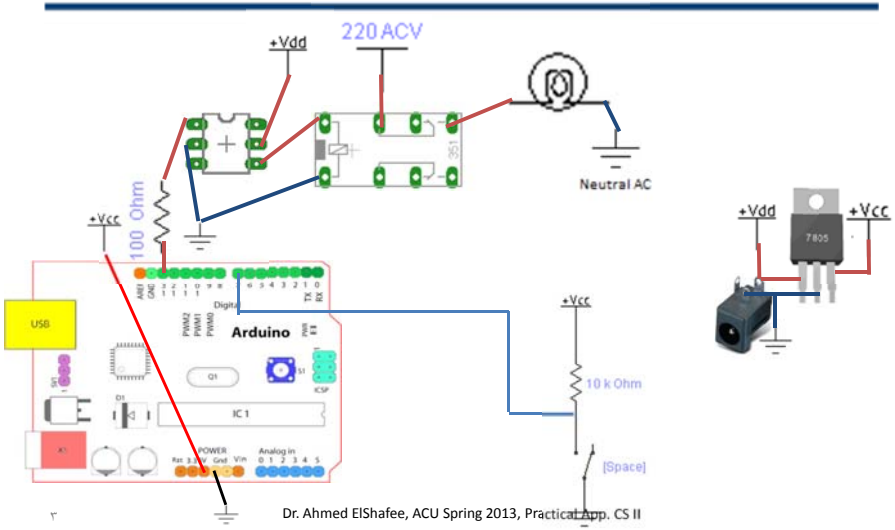
PressControlledACLampToggler

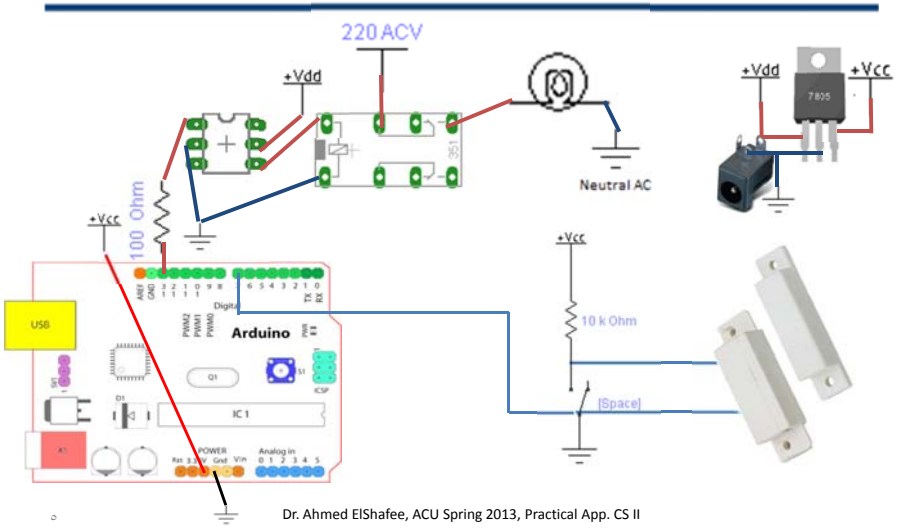



```
#define ACLamp 13
#define BUTTON 7 //press=high
int Button_status=0;
int ACLamp_status=0;
void setup()
{
  pinMode(ACLamp, OUTPUT);
  pinMode(BUTTON,INPUT);
}
void loop()
{
Button_status=digitalRead(BUTTON);
  if(Button_status==HIGH)
  {
    delay(10);
```

```
Button_status=digitalRead(BUTTON);
    if(Button_status==HIGH)
    {
      if(ACLamp_status==LOW)
        ACLamp_status=HIGH;
      else
        ACLamp_status=LOW;
    }
  }

digitalWrite(ACLamp,ACLamp_status)
;
  delay(1000);
}
```

DoorControlledACLamp



- Room Control Truth Table

Door	ACLamp (current)	ACLamp (Next)
Close	Off	Off
Close	On	Off
Open	Off	On
Open	On	On

DoorControlledACLamp

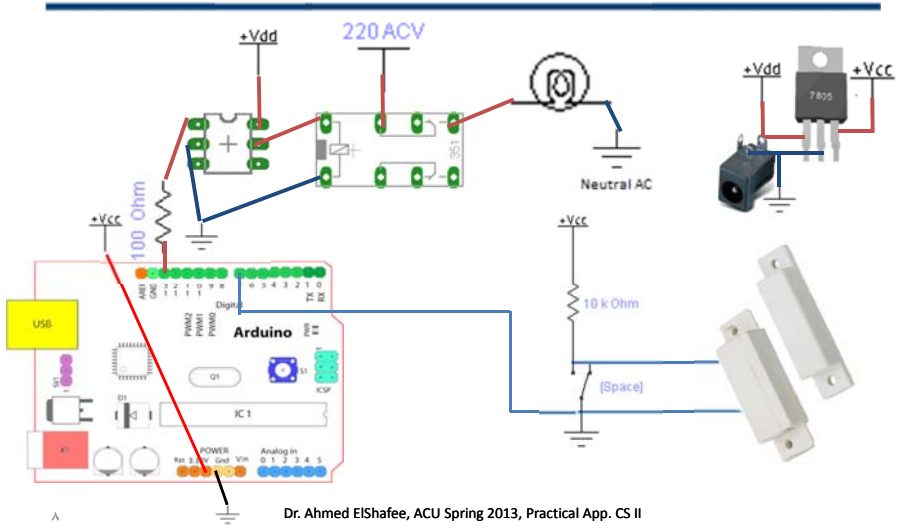
```
#define ACLamp 13
#define Door 7
int Door_status=0; //close = low; open = high
int ACLamp_status=0;
void setup()
{
  pinMode(ACLamp, OUTPUT);
  pinMode(Door,INPUT);
}
void loop()
{
  Door_status=digitalRead(Door);
  if((Door_status==LOW) && (ACLamp_status==0))
    ACLamp_status=0;
else if((Door_status==LOW) && (ACLamp_status==1))
    ACLamp_status=0;
  else if((Door_status==HIGH) && (ACLamp_status==0))
    ACLamp_status=1;
  else if((Door_status==HIGH) && (ACLamp_status==1))
    ACLamp_status=1;



digitalWrite(ACLamp,ACLamp_status);;

}
```


DoorControlledACLampWithTimer



- Room Control Truth Table

#	Door	ACLamp (current)	Delay	ACLamp (Next)
1	Close	Off	0 sec	Off
2	Open	Off	0 sec	On
3	Open	On	0 sec	On
4	Close	On	5 sec	Off

- Room Control Truth Table

Door	ACLamp (current)	Delay	ACLamp (Next)
Close	Off	0 sec	Off
Close	On	5 sec	Off
Open	Off	0 sec	On
Open	On	0 sec	On

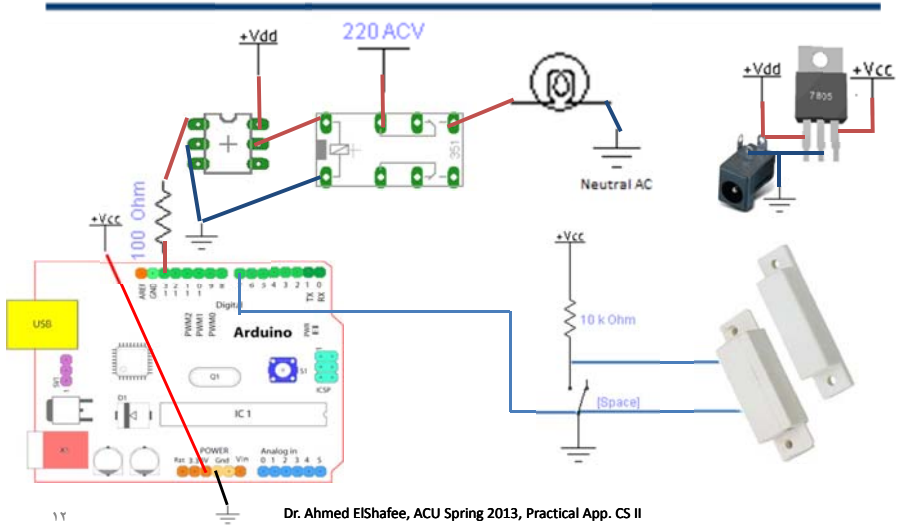

```
#define ACLamp 13
#define Door 7
int Door_status=0; //low close; high open
int ACLamp_status=0;
void setup()
{
  pinMode(ACLamp, OUTPUT);
  pinMode(Door,INPUT);
}
void loop()
{
  Door_status=digitalRead(Door);
  if((Door_status==LOW) &&
(ACLamp_status==0))
    ACLamp_status=0;
```

```
else if((Door_status==LOW) &&
(ACLamp_status==1))
  {
    delay(5000);
    ACLamp_status=0;
  }
  else if((Door_status==HIGH) &&
(ACLamp_status==0))
    ACLamp_status=1;
  else if((Door_status==HIGH) &&
(ACLamp_status==1))
    ACLamp_status=1;

digitalWrite(ACLamp,ACLamp_status);;

}
```


DoorControlledACLampWithCounter



- Room Control Truth Table

#	Door	ACLamp (current)	Counter (current)	Delay	ACLamp (Next)	Counter (Next)
1	Close	Off	Odd	0	NC	NC
2	Open	Off	Odd	0	On	NC
3	Open	On	Odd	0	NC	NC
4	Close	On	Odd	0	NC	Counter ++
5	Close	On	Even	0	NC	NC
6	Open	On	Even	5 Sec	Off	NC
7	Open	Off	Even	0	NC	NC
8	Close	Off	Even	0	NC	Counter ++

- Room Control Truth Table

#	Door	ACLamp (current)	Counter (current)	Delay	ACLamp (Next)	Counter (Next)
1	Close	Off	Odd	0	NC	NC
8	Close	Off	Even	0	NC	Counter ++
4	Close	On	Odd	0	NC	Counter ++
5	Close	On	Even	0	NC	NC
2	Open	Off	Odd	0	On	NC
7	Open	Off	Even	0	NC	NC
3	Open	On	Odd	0	NC	NC
6	Open	On	Even	5 Sec	Off	NC

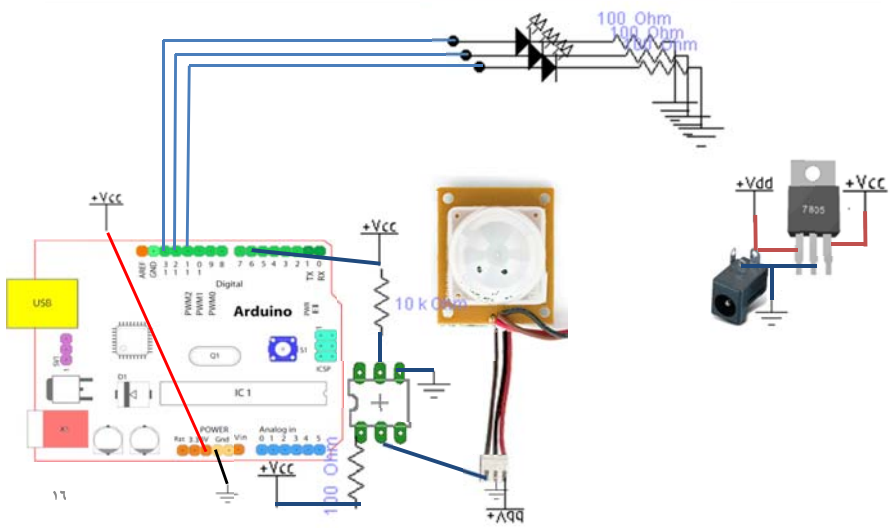

```
#define ACLamp 13
#define Door 7
int Door_status=0; //low close; high open
int ACLamp_status=0;
void setup()
{
  pinMode(ACLamp, OUTPUT);
  pinMode(Door,INPUT);
}
void loop()
{
  Door_status=digitalRead(Door);
  if((Door_status==LOW) && (ACLamp_status==0))
    ACLamp_status=0;
```

```
else if((Door_status==LOW) && (ACLamp_status==1))
  {
    delay(5000);
    ACLamp_status=0;
  }
  else if((Door_status==HIGH) && (ACLamp_status==0))
    ACLamp_status=1;
  else if((Door_status==HIGH) && (ACLamp_status==1))
    ACLamp_status=1;

digitalWrite(ACLamp,ACLamp_status);;

}
```


MovementContrtolledLED

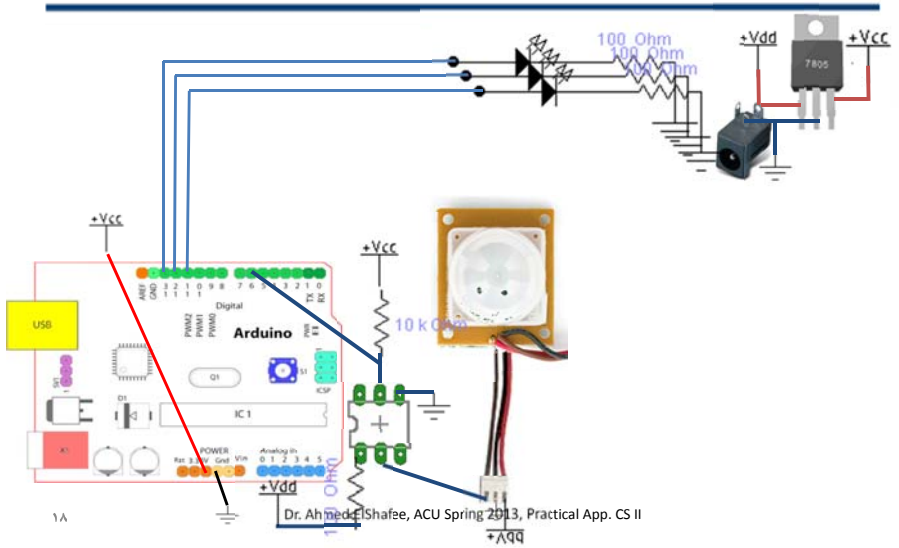


```
#define MovementLed 13
#define AlarmLed 12
#define TimerLed 11
#define PIR 6
int PIR_status=0; //Movement =
LOW; NoMovment=High
int MovementLed_status=0;
int TimerLedStatus=0;
void setup()
{
  pinMode(MovementLed, OUTPUT);
  pinMode(AlarmLed, OUTPUT);
  pinMode(TimerLed, OUTPUT);
  pinMode(PIR,INPUT);
  for(int x=0;x<100;x++)
  {
    delay(100);
```

```
if(TimerLedStatus==0)TimerLedStatus=HI
GH;
    else TimerLedStatus=LOW;
    digitalWrite(TimerLed,TimerLedStatus);
  }
}
void loop()
{
  PIR_status=digitalRead(PIR);
  if(PIR_status==LOW)
MovementLed_status=1;
  else MovementLed_status=0;

digitalWrite(MovementLed,MovementLed_
status);
digitalWrite(AlarmLed,MovementLed_statu
s);
}
```


MovementContrtolledLEDWithTimer




```
#define MovementLed 13
#define AlarmLed 12
#define TimerLed 11
#define PIR 6
int PIR_status=0; //Movement =
LOW; NoMovment=HIGH
int MovementLed_status=0;
int TimerLedStatus=0;
int AlarmStatus=0;
int counter=0;
void setup()
{
  pinMode(MovementLed,
OUTPUT);
  pinMode(AlarmLed, OUTPUT);
  pinMode(TimerLed, OUTPUT);
  pinMode(PIR,INPUT);
  for(int x=0;x<50;x++)
  {
```

```
  delay(100);

if(TimerLedStatus==0)TimerLedStatus
=HIGH;
    else TimerLedStatus=LOW;

digitalWrite(TimerLed,TimerLedStatus
);
  }
}
void loop()
{
  PIR_status=digitalRead(PIR);
  if(PIR_status==LOW)
{MovementLed_status=1;AlarmStatus
=1;counter=0;}
  else
{MovementLed_status=0;counter++;}
  delay(100);
```

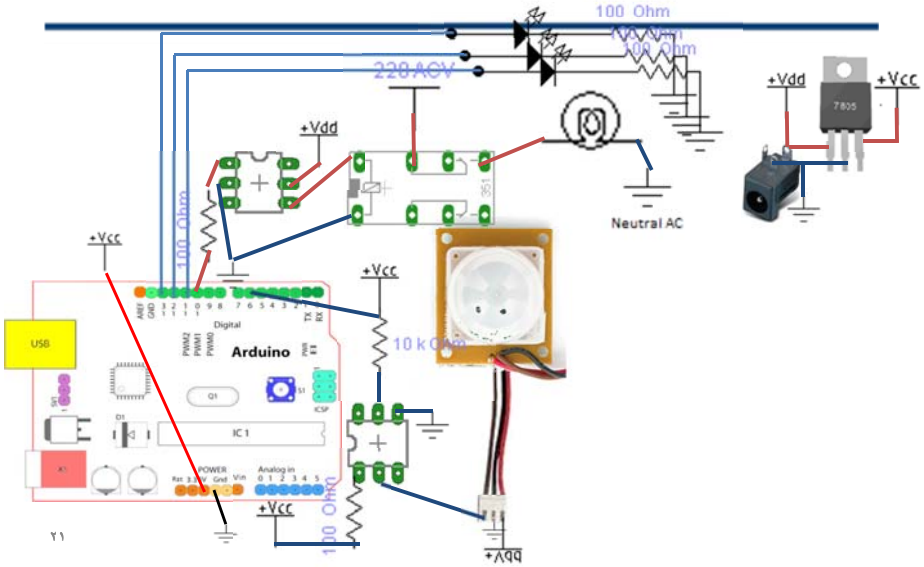


```
if(counter==50)
  {
    AlarmStatus=0;
    TimerLedStatus=0;
    counter=0;
  }
 if(AlarmStatus==1)
 {

if(TimerLedStatus==0)TimerLedStatus=1;
   else TimerLedStatus=0;
 }

digitalWrite(MovementLed,MovementLed_
status);
  digitalWrite(AlarmLed,AlarmStatus);
  digitalWrite(TimerLed,TimerLedStatus);
}
```

MovementContrtolledACLamp



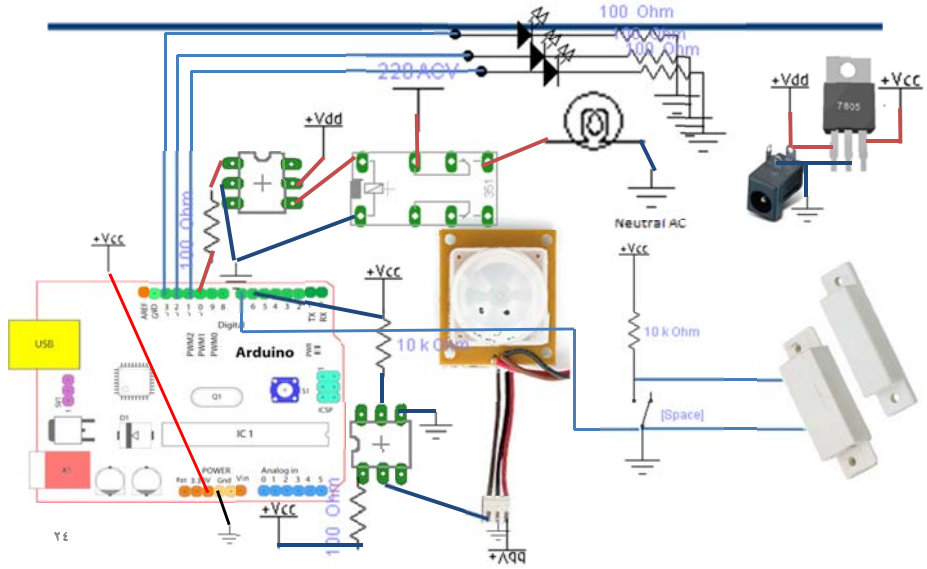

```
#define MovementLed 13
#define AlarmLed 12
#define TimerLed 11
#define PIR 6
#define ACLamp 10
int PIR_status=0; //Movement =
High; NoMovment=LOW
int MovementLed_status=0;
int TimerLedStatus=0;
int AlarmStatus=0;
int counter=0;
int ACLampStatus=0;
void setup()
{
  pinMode(MovementLed,
OUTPUT);
  pinMode(AlarmLed, OUTPUT);
  pinMode(TimerLed, OUTPUT);
  pinMode(ACLamp, OUTPUT);
  pinMode(PIR,INPUT);
  for(int x=0;x<50;x++)
  {
delay(100);
if(TimerLedStatus==0)TimerLedStatus=HI
GH;
    else TimerLedStatus=LOW;
    digitalWrite(TimerLed,TimerLedStatus);
  }
}
void loop()
{
  PIR_status=digitalRead(PIR);
  if(PIR_status==LOW)
{MovementLed_status=1;AlarmStatus=1;c
ounter=0;ACLampStatus=1;}
```



```
else
{MovementLed_status=0;if(counter<
100)counter++;}
  delay(100);
if(counter>=50)
    {
      AlarmStatus=0;
    }
if(counter>=100)
    {
      ACLampStatus=0;
      TimerLedStatus=0;
      counter=0;
    }
if(ACLampStatus==1)
  {
if(TimerLedStatus==0)TimerLedStat
us=1;
else TimerLedStatus=0;
  }
digitalWrite(MovementLed,MovementL
ed_status);
  digitalWrite(AlarmLed,AlarmStatus);
  digitalWrite(ACLamp,ACLampStatus);

digitalWrite(TimerLed,TimerLedStatus);
}
```


MovementAndDoorContrtolledACLamp



If door : open → lamp : on

Else if door : close

if move → lamp : on

else → delay; lamp : off


```
#define MovementLed 13
#define AlarmLed 12
#define TimerLed 11
#define PIR 6
#define ACLamp 10
#define door 7
int PIRStatus=0; //Movement =
High; NoMovment=LOW
int MovementLedStatus=0;
int TimerLedStatus=0;
int AlarmStatus=0;
int counter=0;
int ACLampStatus=0;
int DoorStatus=0;
```

```
void setup()
{
  pinMode(MovementLed, OUTPUT);
  pinMode(AlarmLed, OUTPUT);
  pinMode(TimerLed, OUTPUT);
  pinMode(ACLamp, OUTPUT);
  pinMode(PIR,INPUT);
  pinMode(door,INPUT);
  for(int x=0;x<50;x++)
  {
delay(100);

if(TimerLedStatus==0)TimerLedStatus=HI
GH;
    else TimerLedStatus=LOW;
   digitalWrite(TimerLed,TimerLedStatus);
  }
}
```



```
void loop()
{
  PIRStatus=digitalRead(PIR);
  DoorStatus=digitalRead(door);
  if(PIRStatus==LOW)
{MovementLedStatus=1;AlarmStatus=
1;counter=0;}
  else
{MovementLedStatus=0;if(counter<10
0)counter++;}
  delay(100);
  if(counter>=50)
    {
      AlarmStatus=0;
      TimerLedStatus=0;
    }
  if(AlarmStatus==1)
   {
```

```
if(TimerLedStatus==0)TimerLedStatus
=1;
      else TimerLedStatus=0;
   }

  if(DoorStatus==HIGH)
   {
     ACLampStatus=1;
   }
  else if(DoorStatus==LOW)
  {
   if(AlarmStatus==1)
    {
      ACLampStatus=1;
    }
   else if(AlarmStatus==0)
   {
      if(counter>=100)
```



```
ACLampStatus=0;
    }
  }

digitalWrite(MovementLed,MovementLedSt
atus);
  digitalWrite(AlarmLed,AlarmStatus);
  digitalWrite(ACLamp,ACLampStatus);
  digitalWrite(TimerLed,TimerLedStatus);
}
```

Thanks,

See you next Week, isA