```
/*
// The REAL DEAL - Running Code
 */


int led22 = 22;
int led23 = 23;
int led24 = 24;
int led25 = 25;
int led27 = 27;
int led29 = 29;
int led31 = 31;
int led33 = 33;
int led35 = 35;
int led36 = 36;
int led37 = 37;
int led38 = 38;
//int led40 = 40;
// output 40 not working
int led42 = 42;
int led44 = 44;
int led46 = 46;
int led48 = 48;

int ramp = A0;
int wye = A1;
int eevjct = A2;
int mc = A3;
int bwf = A4;
```

```
int ews = A8; //East Wye Swtich status
int wws = A9; // West Wye Switch status
int eevs = A10;  //East El Vado Jct Switch status
int rest = A11; // Show restricting input
//int A12 - Dead input
int perm = A13; // Permit to enter input
boolean permlatch = false;

  int timer2 = 500;
  int timer;
  long currentMillis = 0;
  long previousMillis = 0;
  long currentMillis2 = 0;
  long previousMillis2 = 0;
  long interval = 900;
  long interval2 = 300;
  int ledState = LOW;

void setup() {

  pinMode(A0, INPUT);
  pinMode(A1, INPUT);
  pinMode(A2, INPUT);
  pinMode(A3, INPUT);
  pinMode(A4, INPUT);
  pinMode(A8, INPUT);
  pinMode(A9, INPUT);
  pinMode(A10, INPUT);
  pinMode(A11, INPUT);
```

```
  pinMode(A12, INPUT);
  pinMode(A13, INPUT);
  pinMode(A14, INPUT);
  pinMode(A15, INPUT);
  pinMode(led22, OUTPUT);
  pinMode(led23, OUTPUT);
  pinMode(led24, OUTPUT);
  pinMode(led25, OUTPUT);
  pinMode(led27, OUTPUT);
  pinMode(led29, OUTPUT);
  pinMode(led31, OUTPUT);
  pinMode(led33, OUTPUT);
  pinMode(led35, OUTPUT);
  pinMode(led37, OUTPUT);
  pinMode(led36, OUTPUT);
  pinMode(led38, OUTPUT);
//    pinMode(led40, OUTPUT);
  pinMode(led42, OUTPUT);
  pinMode(led44, OUTPUT);
  pinMode(led46, OUTPUT);
  pinMode(led48, OUTPUT);

digitalWrite(led31,HIGH); //S2-RD
digitalWrite(led37,HIGH); // S3-RD
}

void loop()
{
int led22 = 22;
```

```
int led23 = 23;
int led24 = 24;
int led25 = 25;
int led27 = 27;
int led29 = 29;
int led31 = 31; //S2 Red
int led33 = 33; //S2 White
int led35 = 35; //S3 White
int led36 = 36;
int led37 = 37; //S3 Red
int led38 = 38;
//int led40 = 40;
// output 40 not working
int led42 = 42;
int led44 = 44;
int led46 = 46;
int led48 = 48;

int ramp = A0;
int wye = A1;
int eevjct = A2;
int mc = A3;
int bwf = A4;
int ews = A8; //East Wye Swtich status, high is diverging
int wws = A9; // West Wye Switch status, high is diverging
int eevs = A10;  //East El Vado Jct Switch status
int rest = A11; // Show restricting input
int perm = A13; // Permit to enter input
boolean permlatch;
```

```
if (digitalRead(perm) == HIGH)
{
  delay(100); // delay to debounce switch
  permlatch = !permlatch; // toggle running variable
  digitalWrite(led22,HIGH); //EEV Jct Panel Indication
  if (digitalRead(A10) == LOW) //EEV Jct Switch Normal = LOW
    {
    digitalWrite(led31,!permlatch); //S2-RD
    delay(200);
    digitalWrite(led33,permlatch); //S2-WT
    }
  else
    {
    digitalWrite(led37,!permlatch); // S3-RD
    delay(200);
    digitalWrite(led35,permlatch); // S3-WT
  }
}


if (digitalRead(eevjct) == LOW || digitalRead(wws) == HIGH)
  {
  digitalWrite(led27,LOW); // S4-YL
  delay(200);
  digitalWrite(led29,HIGH); //S4-RD
  }
else
```

```
 {
 digitalWrite(led29,LOW); //S4-RD
 delay(200);
 digitalWrite(led27,HIGH); //S4-YL
 }
if (digitalRead(A11) == LOW)
{
if (digitalRead(A10) == LOW)    //EEV Jct Switch Normal = LOW
{
 if (digitalRead(wws) == HIGH && digitalRead(eevjct) == HIGH && digitalRead(mc) == HIGH)  //East Wye Switch: High = Normal, West Wye Switch: LOW = Normal
 {
  digitalWrite(led38,LOW); // UPPER GREEN
  digitalWrite(led46,LOW); // UPPER RED
  digitalWrite(led42,LOW); // LOWER YELLOW
  digitalWrite(led36,LOW); // LOWER GREEN
  delay (200);
  digitalWrite(led44,HIGH); // UPPER YELLOW
  digitalWrite(led48,HIGH); // LOWER RED
 }
  if (digitalRead (ews) == LOW && digitalRead(eevjct) == HIGH && digitalRead(mc) == HIGH)  //East Wye Switch: High = Normal, West Wye Switch: LOW = Normal
 {
  digitalWrite(led38,LOW); // UPPER GREEN
  digitalWrite(led46,LOW); // UPPER RED
  digitalWrite(led42,LOW); // LOWER YELLOW
  digitalWrite(led36,LOW); // LOWER GREEN
  delay (200);
  digitalWrite(led44,HIGH); // UPPER YELLOW
```

```
  digitalWrite(led48,HIGH); // LOWER RED
 }
 if (digitalRead(eevjct) == HIGH && digitalRead(mc) == HIGH && digitalRead(ramp) == HIGH &&
digitalRead(wws) == LOW && digitalRead (ews) == HIGH)  // Note: LOW = Occupied
 {
  digitalWrite(led46,LOW); // UPPER RED
  digitalWrite(led42,LOW); // LOWER YELLOW
  digitalWrite(led44,LOW); // UPPER YELLOW
  digitalWrite(led36,LOW); // LOWER GREEN
  delay (200);
  digitalWrite(led48,HIGH); // LOWER RED
  digitalWrite(led38,HIGH); // UPPER GREEN
 }
 if (digitalRead(eevjct) == HIGH && digitalRead(mc) == HIGH && digitalRead(ramp) == LOW)  // Note:
LOW = Occupied
 {
  digitalWrite(led38,LOW); // UPPER GREEN
  digitalWrite(led46,LOW); // UPPER RED
  digitalWrite(led42,LOW); // LOWER YELLOW
  digitalWrite(led36,LOW); // LOWER GREEN
  delay (200);
  digitalWrite(led44,HIGH); // UPPER YELLOW
  digitalWrite(led48,HIGH); // LOWER RED
 }

 if (digitalRead(eevjct) == LOW || digitalRead(mc) == LOW)  // Note: LOW = Occupied
 {
  digitalWrite(led38,LOW); // UPPER GREEN
  digitalWrite(led36,LOW); // LOWER GREEN
```

```
   digitalWrite(led44,LOW); // UPPER YELLOW
   digitalWrite(led42,LOW); // LOWER YELLOW
   delay (200);
   digitalWrite(led46,HIGH); // UPPER RED
   digitalWrite(led48,HIGH); // LOWER RED
  }
}
if (digitalRead(A10) == HIGH)    //EEV Jct Switch Normal = LOW
{
  if (digitalRead(eevjct) == HIGH && digitalRead(bwf) == HIGH)  // Note: LOW = Occupied
  {
   digitalWrite(led48,LOW); // LOWER RED
   digitalWrite(led36,LOW); // LOWER GREEN
   digitalWrite(led44,LOW); // UPPER YELLOW
   digitalWrite(led38,LOW); // UPPER GREEN
   delay (200);
   digitalWrite(led46,HIGH); // UPPER RED
   digitalWrite(led42,HIGH); // LOWER YELLOW
  }
 if (digitalRead(eevjct) == LOW || digitalRead(bwf) == LOW)  // Note: LOW = Occupied
  {
   digitalWrite(led38,LOW); // UPPER GREEN
   digitalWrite(led36,LOW); // LOWER GREEN
   digitalWrite(led44,LOW); // UPPER YELLOW
   digitalWrite(led42,LOW); // LOWER YELLOW
   delay (200);
   digitalWrite(led46,HIGH); // UPPER RED
   digitalWrite(led48,HIGH); // LOWER RED
  }
```

```
}
}

if (digitalRead(ramp) == HIGH && digitalRead(ews) == HIGH)
{
digitalWrite(led25,LOW); // S6-RD
delay(200);
digitalWrite(led23,HIGH); // S6-GN
}
else
{
digitalWrite(led23,LOW); // S6-GN
delay(200);
digitalWrite(led25,HIGH); // S6-RD
}


if(digitalRead(eevjct) == LOW)
{
permlatch = false;
digitalWrite(led22,permlatch); //EEV Jct Panel Indication
digitalWrite(led33,permlatch); //S2-WT
delay(200);
digitalWrite(led31,!permlatch); //S2-RD
digitalWrite(led35,permlatch); // S3-WT
delay(200);
digitalWrite(led37,!permlatch); // S3-RD

}
```

```
// Loop for blink logic:
  unsigned long currentMillis = millis();
  if(currentMillis - previousMillis > interval)
 {    // save the last time you blinked the LED
   previousMillis = currentMillis;
   // if the LED is off turn it on and vice-versa:
   if (ledState == LOW)
     ledState = HIGH;
   else
     ledState = LOW;

   // set the LED with the ledState of the variable:
   //EEV Jct Switch Normal = LOW

      if(digitalRead(A11) == HIGH && digitalRead(A10) == LOW && !permlatch == true)
      digitalWrite(led22,ledState); //EEV Jct Panel Indication
   if(digitalRead(A11) == HIGH && digitalRead(A10) == LOW && !permlatch == true)
{   digitalWrite(led31, ledState);  }
   if(digitalRead(A11) == HIGH && digitalRead(A10) == HIGH && !permlatch == true)
{   digitalWrite(led37, ledState);  }
   if(digitalRead(A11) == HIGH && !permlatch == true)
{
   digitalWrite(led36,LOW); // LOWER GREEN
   digitalWrite(led38,LOW); // UPPER GREEN
   digitalWrite(led42,LOW); // LOWER YELLOW
   digitalWrite(led44,LOW); // UPPER YELLOW
   digitalWrite(led46,HIGH); // UPPER RED
   digitalWrite(led48,ledState); // LOWER RED
}
```

```
}


}
```