D_{10}

D_9

D_8

D_7

D_6

D_5

D_4

D_3

D_2

D_1

D_0

A_2

Stunden

D_{13}

D_{12}

D_{11}

D_{10}

D_9

D_8

D_7

D_6

D_5

D_4

D_3

D_2

D_1

D_0

A_1

Minuten

D_{13}

D_{12}

D_{11}

D_{10}

D_9

D_8

D_7

D_6

D_5

D_4

D_3

D_2

D_1

D_0

A_0

Sekunden

85

80

Schaltplan

Rheinturmuhr mit Mikrocontroller

```c
                                            #define A0 14 //ANALOG 0
#define A1 15
#define A2 16
#define INTERVAL 1000

//PINS SEKUNDEN MINUTEN STUNDEN
byte oneSecond[] = {0,1,2,3,4,5,6,7,8}; //No Serial on 0/1
byte tenSecond[] = {9,10,11,12,13};       //
byte theSwitch[] = {14,15,16};            //SEKUNDE MINUTE STUNDE
int s10=0,s1=0; //ONESECOND TENSECOND BAND
int m10=5,m1=9;
int h10=2,h1=3;

unsigned long t,t0; //TIMEINIT

void INTITIME(void){t0=millis();}
unsigned long TIMEREAD(void){return millis()-t0;}

void setup()
{int i;
 for(i=0; i<sizeof(oneSecond);i++)pinMode(oneSecond[i],OUTPUT);
 for(i=0; i<sizeof(tenSecond);i++)pinMode(tenSecond[i],OUTPUT);
 for(i=0; i<sizeof(theSwitch);i++)pinMode(theSwitch[i],OUTPUT);
 digitalWrite(A0, HIGH);
 digitalWrite(A1, HIGH);
 digitalWrite(A2, HIGH);
}

void loop()
{int i;
 t=TIMEREAD();
 do
 {for(i=0;i<sizeof(oneSecond);i++)digitalWrite(oneSecond[i],s1<=i?LOW:HIGH);  //EINERBAND SEKUNDEN
  for(i=0;i<sizeof(tenSecond);i++)digitalWrite(tenSecond[i],s10<=i?LOW:HIGH); //ZEHNERBAND SEKUNDEN
  digitalWrite(A0, LOW);//Masse an Sekunden
  delay(1);             //SHOWTIME SEKUNDEN
  digitalWrite(A0, HIGH);
  for(i=0;i<sizeof(oneSecond);i++)digitalWrite(oneSecond[i],m1<=i?LOW:HIGH);  //EINERBAND MINUTEN
  for(i=0;i<sizeof(tenSecond);i++)digitalWrite(tenSecond[i],m10<=i?LOW:HIGH); //ZEHNERBAND MINUTEN
  digitalWrite(A1, LOW);//Masse an MINUTEN
  delay(1);             //SHOWTIME MINUTEN
  digitalWrite(A1, HIGH);
  for(i=0;i<sizeof(oneSecond);i++)digitalWrite(oneSecond[i],h1<=i?LOW:HIGH);  //EINERBAND STUNDEN
  for(i=0;i<sizeof(tenSecond);i++)digitalWrite(tenSecond[i],h10<=i?LOW:HIGH); //ZEHNERBAND STUNDEN
  digitalWrite(A2, LOW);//Masse an STUNDEN
  delay(1);             //SHOWTIME STUNDEN
  digitalWrite(A2, HIGH);
 }while(TIMEREAD()<(t+INTERVAL));
 //-------------------------------
 s1++;                   //s++;
 if(s1>=10){s1=0;s10++;}
 if(s10>=6){s10=0;m1++;} //m1++;
 if(m1>=10){m1=0;m10++;}
 if(m10>=6){m10=0;h1++;} //h1++;
 if(h1>=10){h1=0;h10++;}
 if(h10>=2 && h1>=4){h10=0;h1=0;}
}
```
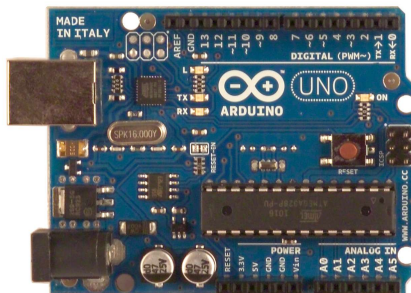
Software

Hardware