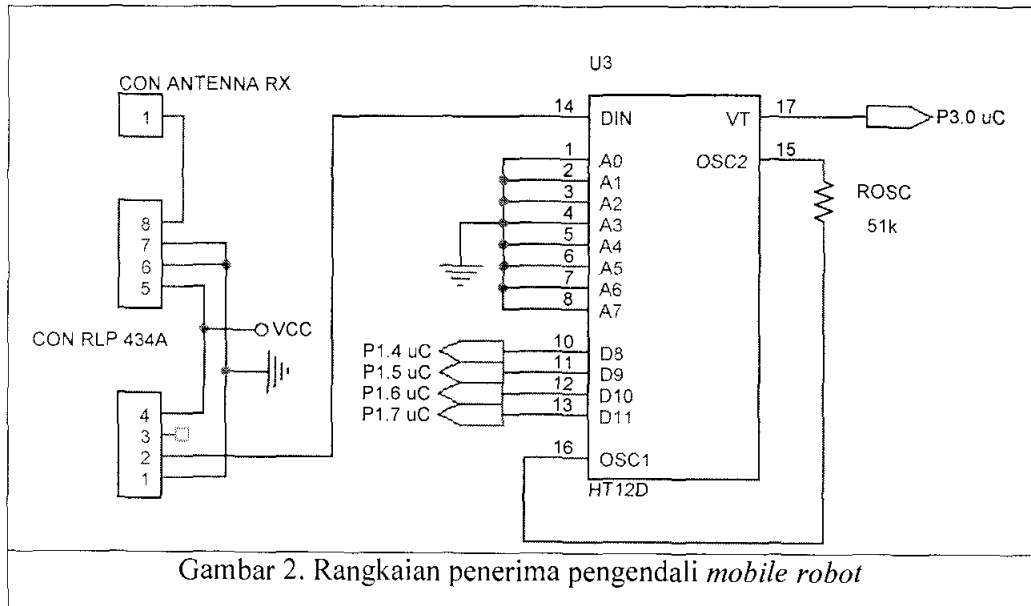
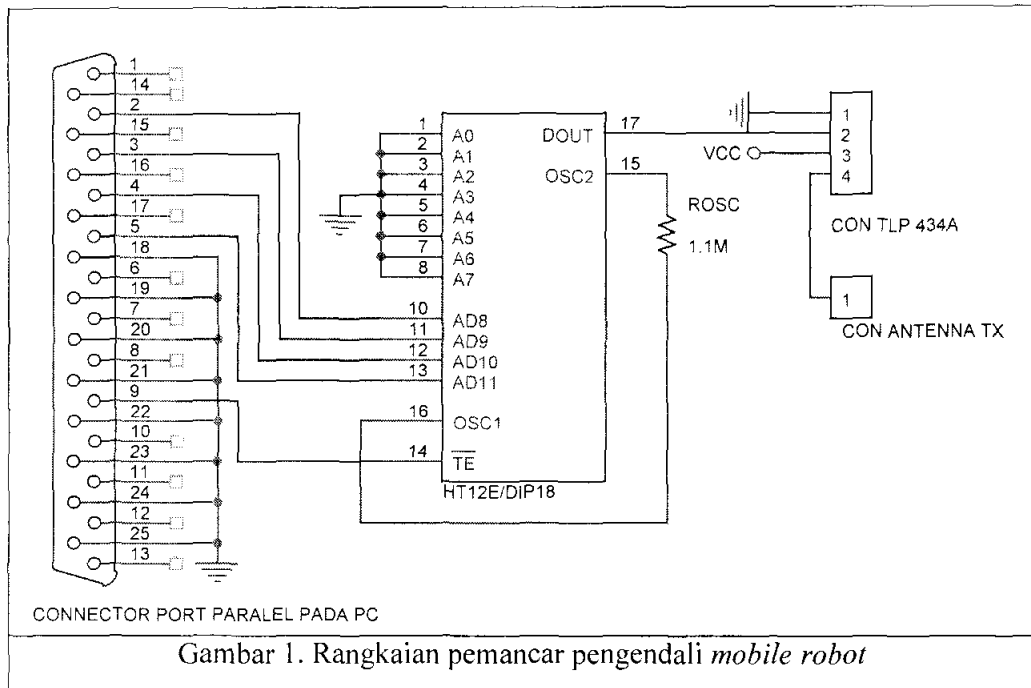
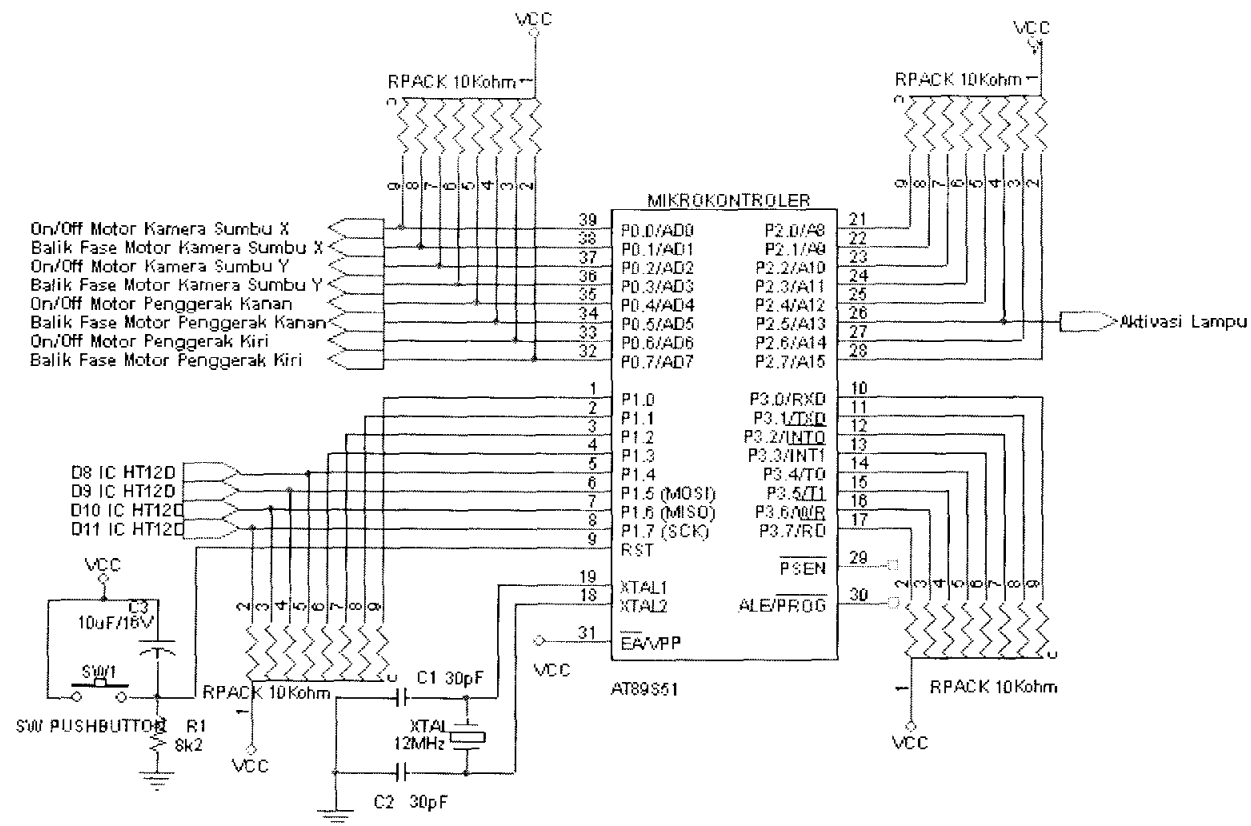


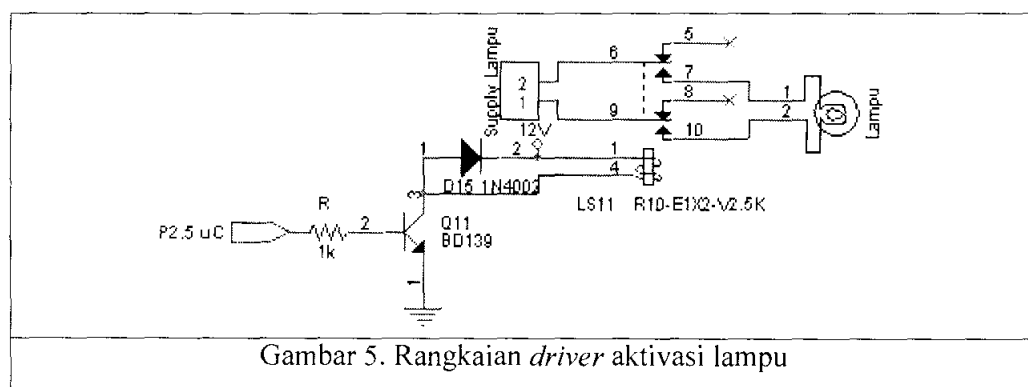
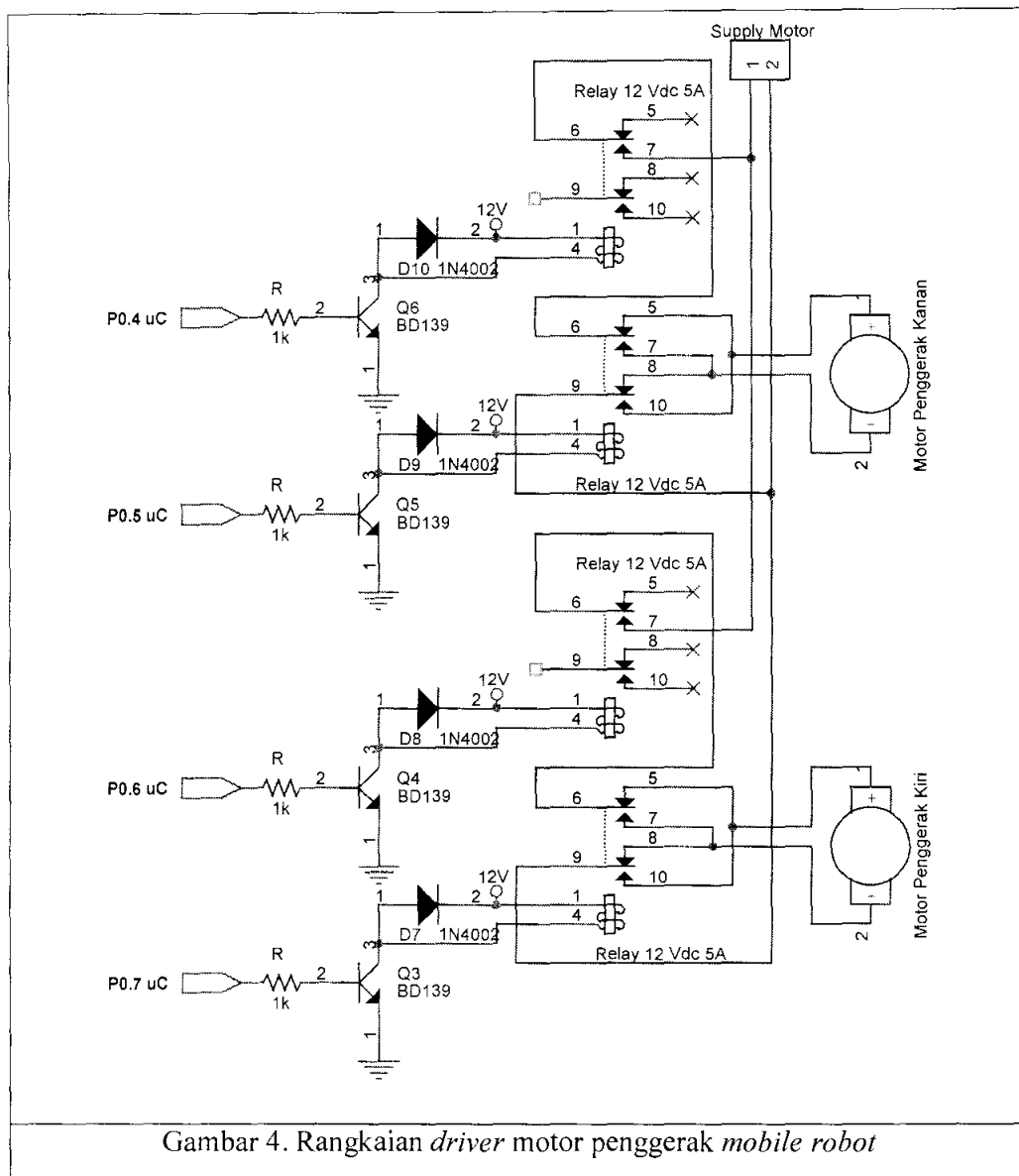
LAMPIRAN

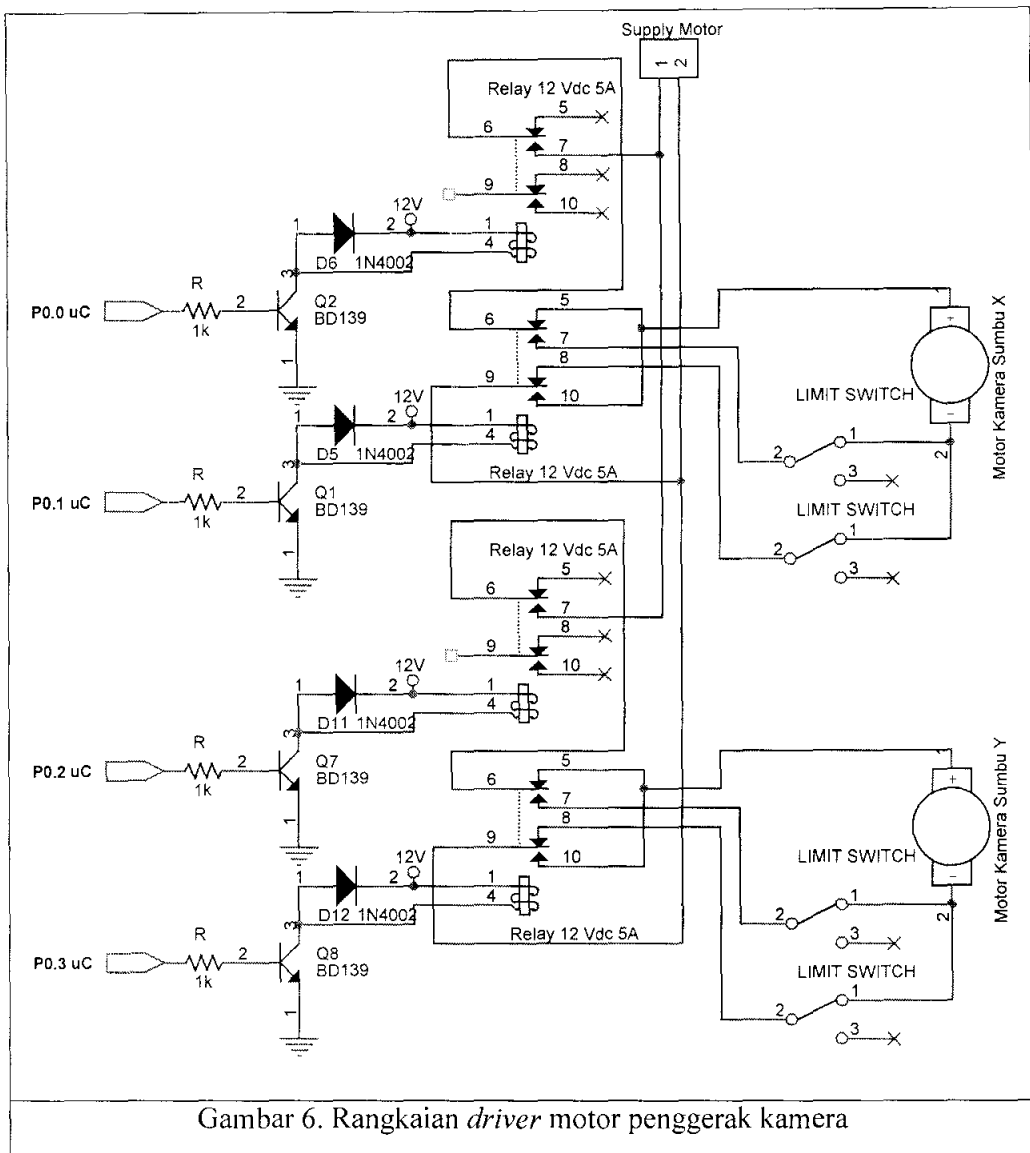
Lampiran 1. Skema Lengkap Rangkaian



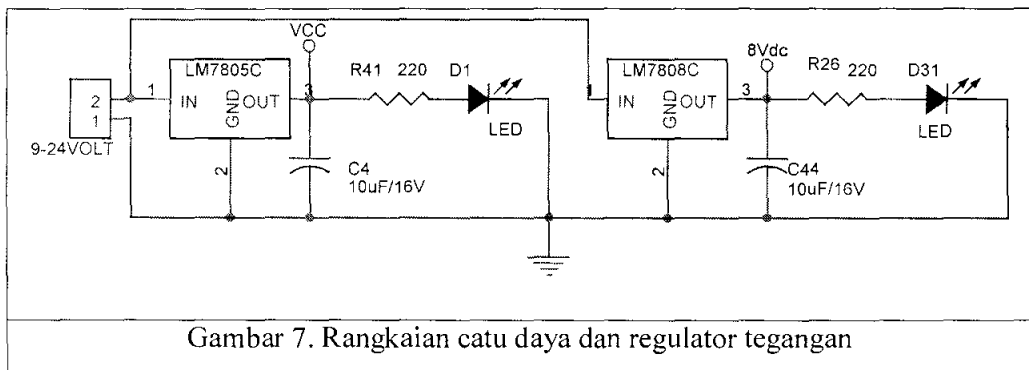


Gambar 3. Rangkaian mikrokontroler AT89S51





Gambar 6. Rangkaian *driver* motor penggerak kamera



Gambar 7. Rangkaian catu daya dan regulator tegangan

Lampiran 2. *Listing Program*

{
PERANCANGAN DAN PEMBUATAN ROBOT PENJELAJAH
oleh REDI YUNianto KOERNIAWAN / 5103001057

Judul Program: Program pada PC
Tanggal: 13 Nov 2005
Target: Borland Delphi 7.0

DESKRIPSI

Membaca input dan mengirimkan data ke mikrokontroler melalui port paralel.)

unit Unit2;

interface

uses

Windows, Messages, SysUtils, Variants, Classes, Graphics, Controls, Forms,
Dialogs, StdCtrls, ExtCtrls, OleCtrls, jpeg, Buttons;

type

TForm2 = class(TForm)

Close: TSpeedButton;

procedure FormKeyDown(Sender: TObject; var Key: Word; Shift: TShiftState);

procedure FormKeyUp(Sender: TObject; var Key: Word; Shift: TShiftState);

procedure CloseClick(Sender: TObject);

procedure FormClose(Sender: TObject; var Action: TCloseAction);

private

{ Private declarations }

public

{ Public declarations }

end;

var

Form2: TForm2;

implementation

uses Unit1, Unit3, Unit4;

{ \$R *.dfm }

procedure PortOut(Port : Word; Data : Byte); stdcall; external 'io.dll';

```
procedure TForm2.FormKeyDown(Sender: TObject; var Key: Word; Shift: TShiftState);
```

```
begin
```

```
case key of
```

```
65: begin      //a = kiri  
    PortOut(888,3); //00000011  
end;
```

```
68: begin      //d = kanan  
    PortOut(888,6); //00000110  
end;
```

```
83: begin      //s = mundur  
    PortOut(888,7); //00000111  
end;
```

```
87: begin      //w = maju  
    PortOut(888,14); //00001110  
end;
```

```
81: begin      //q = untuk lampu  
    PortOut(888,12); //00001100  
end;
```

```
38: begin      //up = kamera naik  
    PortOut(888,13); //00001101  
end;
```

```
40: begin      //down = kamera turun  
    PortOut(888,9); //00001001  
end;
```

```
39: begin      //right = kamera kanan  
    PortOut(888,10); //00001010  
end;
```

```
37: begin      //left = kamera kiri  
    PortOut(888,5); //00000101  
end;
```

```
72: begin      //h = help  
    form3.Show;  
end;
```

```
end;
```

```
end;
```

```

procedure TForm2.FormKeyUp(Sender: TObject; var Key: Word; Shift: TShiftState);
begin
  PortOut(888,0);
  PortOut(888,128);
  PortOut(888,0);
  PortOut(888,128);
  PortOut(888,0);
  PortOut(888,128);
end;

procedure TForm2.CloseClick(Sender: TObject);
var masterpanelhnd:hwnd;
begin
  application.Terminate;
  masterpanelhnd:=findwindow(nil,'PowerVCR II Panel');
  if postmessage(masterpanelhnd,wm_close,0,0)=false then
  begin
    application.Terminate;
  end;
end;

procedure TForm2.FormClose(Sender: TObject; var Action: TCloseAction);
var masterpanelhnd:hwnd;
begin
  application.Terminate;
  masterpanelhnd:=findwindow(nil,'PowerVCR II Panel');
  if postmessage(masterpanelhnd,wm_close,0,0)=false then
  begin
    application.Terminate;
  end;
end;

end.

```


/*

PERANCANGAN DAN PEMBUATAN ROBOT PENJELAJAH
oleh REDI YUNianto KOERNIAWAN / 5103001057

Judul Program: Program pada mikrokontroler
Tanggal: 13 Nov 2005
Target: AT89S51

DESKRIPSI

Menerima data dari PC dan mengatur aktif tidaknya relay. */

```
#include<AT89x51.h>
```

```
#define receiver_data    P1
#define vt_pulse         P3_0
#define oo_motkamera_x   P0_0
#define bf_motkamera_x   P0_1
#define oo_motkamera_y   P0_2
#define bf_motkamera_y   P0_3
#define oo_mot_kanan     P0_4
#define bf_mot_kanan     P0_5
#define oo_mot_kiri      P0_6
#define bf_mot_kiri      P0_7
#define oo_lampu         P2_5
```

/* Program inti */

```
int red1,red2,red3,eo_lampu,hsl_eo_lampu;
```

```
void main() {
P0=0X00;
P1=0XFF;
P2=0X0A;
eo_lampu=0;
hsl_eo_lampu=0;
```

```
while (1)
```

```
{
    if (vt_pulse==1)
    {
        switch (P1)
        {
            case 0B11001111: // 1.A = KIRI
            {
                bf_mot_kanan=1;
                oo_mot_kanan=1;
                oo_mot_kiri=1;
            }
            break;
```

```

case 0B01101111:                                // 2.D = KANAN
{
    bf_mot_kiri=1;
    oo_mot_kanan=1;
    oo_mot_kiri=1;
}
break;

case 0B11101111:                                // 3.S = MUNDUR
{
    bf_mot_kanan=1;
    bf_mot_kiri=1;
    oo_mot_kanan=1;
    oo_mot_kiri=1;
}
break;

case 0B01111111:                                // 4.W = MAJU
{
    oo_mot_kanan=1;
    oo_mot_kiri=1;
}
break;

case 0B00111111:                                // 5.Q= LAMPU
{
    eo_lampu++;
    hsl_eo_lampu=(eo_lampu % 2);
    if (hsl_eo_lampu==1)
    {
        oo_lampu=1;
    }
    else
    {
        oo_lampu=0;
    }
}
break;

case 0B10111111:                                // 6.UP = KAMERA NAIK
{
    oo_motkamera_y=1;
}
break;

case 0B10011111:                                // 7.DOWN = KAMERA TURUN
{
    bf_motkamera_y=1;
    oo_motkamera_y=1;
}
break;

```

```

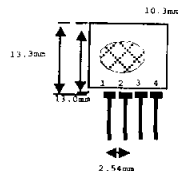
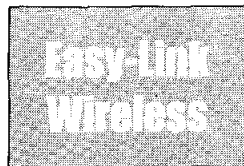
        case 0B10101111:
        {
            oo_motkamera_x=1;
        }
        break;

        case 0B01011111:
        {
            bf_motkamera_x=1;
            oo_motkamera_x=1;
        }
        break;

        default:
        {
            P0=0B00000000;
        }
        break;
    }
}
if (vt_pulse==0)
{
    P0=0B00000000;
}
}

```

TLP434A Ultra Small Transmitter



pin 1 : GND
pin 2 : Data In
pin 3 : Vcc
pin 4 : Antenna (RF output)

Frequency 315, 418 and 433.92 Mhz

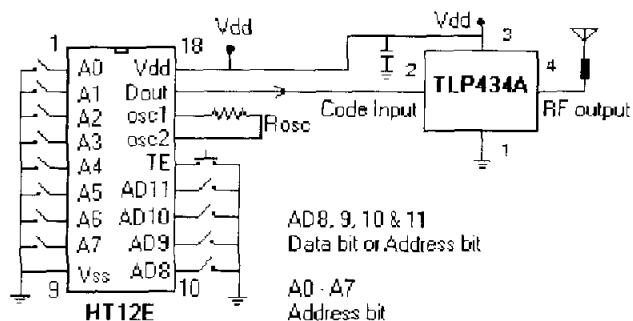
Modulation : ASK
Operation Voltage : 2 - 12 VDC

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Vcc	Operating supply voltage		2.0	-	12.0	V
Icc 1	Peak Current (2V)		-	-	1.64	mA
Icc 2	Peak Current (12V)		-	-	19.4	mA
Vh	Input High Voltage	Idata= 100uA (High)	Vcc-0.5	Vcc	Vcc+0.5	V
VI	Input Low Voltage	Idata= 0 uA (Low)	-	-	0.3	V
FO	Absolute Frequency	315Mhz module	314.8	315	315.2	MHz
PO	RF Output Power- 50ohm	Vcc = 9V-12V	-	16	-	dBm
		Vcc = 5V-6V	-	14	-	dBm
DR	Data Rate	External Encoding	512	4.8K	200K	bps

Notes : (Case Temperature = 25°C +/- 2°C , Test Load Impedance = 50 ohm)

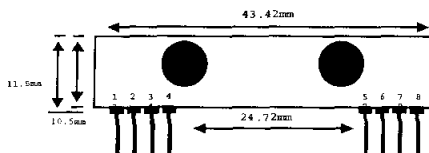
Application Circuit :

Typical Key-chain Transmitter using HT12E-18DIP, a Binary 12 bit Encoder from Holtek Semiconductor Inc.



AD8, 9, 10 & 11
Data bit or Address bit
A0 - A7
Address bit

RLP434A SAW Based Receiver



pin 1 : Gnd
pin 2 : Digital Data Output
pin 3 : RSSI
pin 4 : Vcc
pin 5 : Vcc
pin 6 : E/D (Enable = 1, Disable = 0)
pin 7 : Gnd
pin 8 : Antenna

Frequency 315, 418 and 433.92 Mhz

Modulation : ASK
Supply Voltage : 3.3 - 6.0 VDC
Output : Digital & Linear

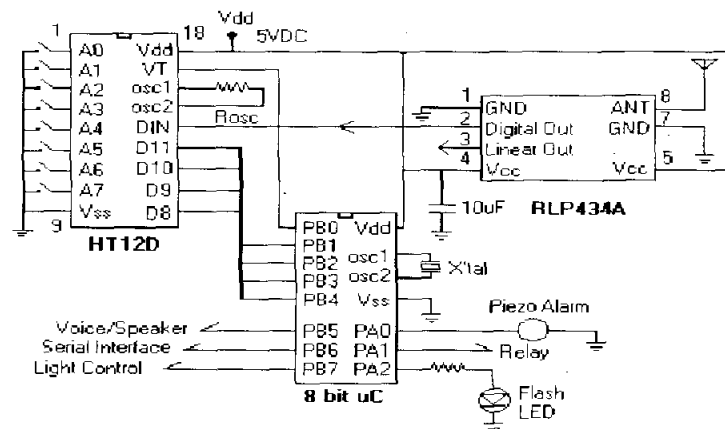
Symbol	Parameter	Conditions	Min	Typ	Max	
Vcc	Operating supply voltage		3.3	5.0V	6.0	V
Itot	Operating Current		-	4.5	-	mA
Vdata	Data Out	Idata = +200 uA (High)	Vcc-0.5	-	Vcc	V
		Idata = -10 uA (Low)	-	-	0.3	V

Electrical Characteristics

Characteristics	SYM	Min	Typ	Max	Unit
Operation Radio Frequency	FC	315, 418 and 433.92			MHz
Sensitivity	Pref		-110		dBm
Channel Width			+500		Khz
Noise Equivalent BW			4		Khz
Receiver Turn On Time			5		ms
Operation Temperature	Top	-20	-	80	C
Baseboard Data Rate			4.8		KHz

Application Circuit :

Typical RF Receiver using HT12D-18DIP, a Binary 12 bit Decoder with 8 bit uC HT48RXX from Holtek Semiconductor Inc.



BIODATA



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