Remote Override of Traffic Signal in Emergency

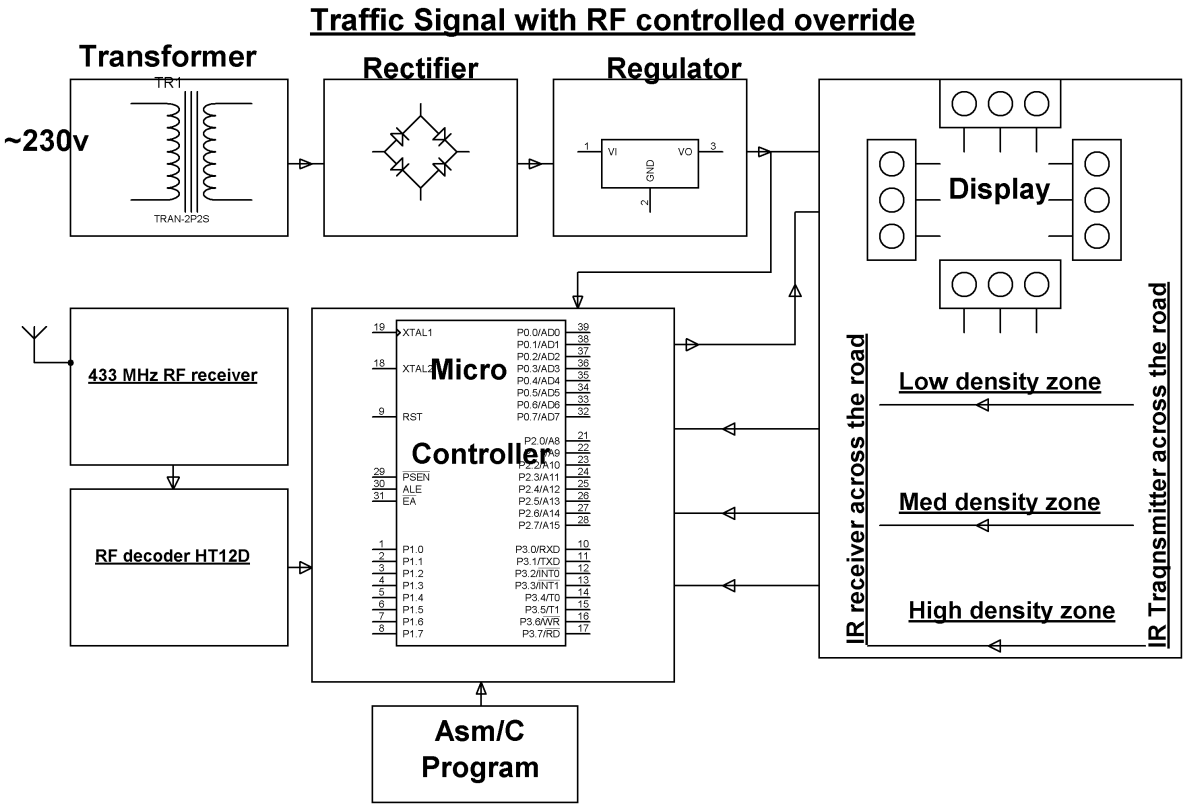
ABSTRACT

The project is designed to develop a density based dynamic traffic signal system having remote override facilities. During normal time the signal timing changes automatically on sensing the traffic density at the junction but in the event of any emergency vehicle like ambulance, fire brigade etc requiring priority are built in with RF remote control to override the set timing by providing instantaneous green signal in the desired direction while blocking the other lanes by red signal for some time. Traffic congestion is a severe problem in many major cities across the world thus it is felt imperative to provide such facilities to important vehicles.

Conventional traffic light system is based on fixed time concept allotted to each side of the junction which cannot be varied as per varying traffic density. Junction timings allotted are fixed. Sometimes higher traffic density at one side of the junction demands longer green time as compared to standard allotted time. The proposed system using a microcontroller of 8051 family duly interfaced with sensors, changes the junction timing automatically to accommodate movement of vehicles smoothly avoiding unnecessary waiting time at the junction. The sensors used in this project are IR and photodiodes are in line of sight configuration across the loads to detect the density at the traffic signal. The density of the vehicles is measured in three zones i.e., low, medium, high based on which timings are allotted accordingly. The override feature is activated by an on board RF transmitter operated from the emergency vehicle.

Further the project can be enhanced by synchronizing all the traffic junctions in the city by establishing a network among them. The network can be wired or wireless. This synchronization will greatly help in reducing traffic congestion.

BLOCK DIAGRAM



HARDWARE REQUIREMENTS:

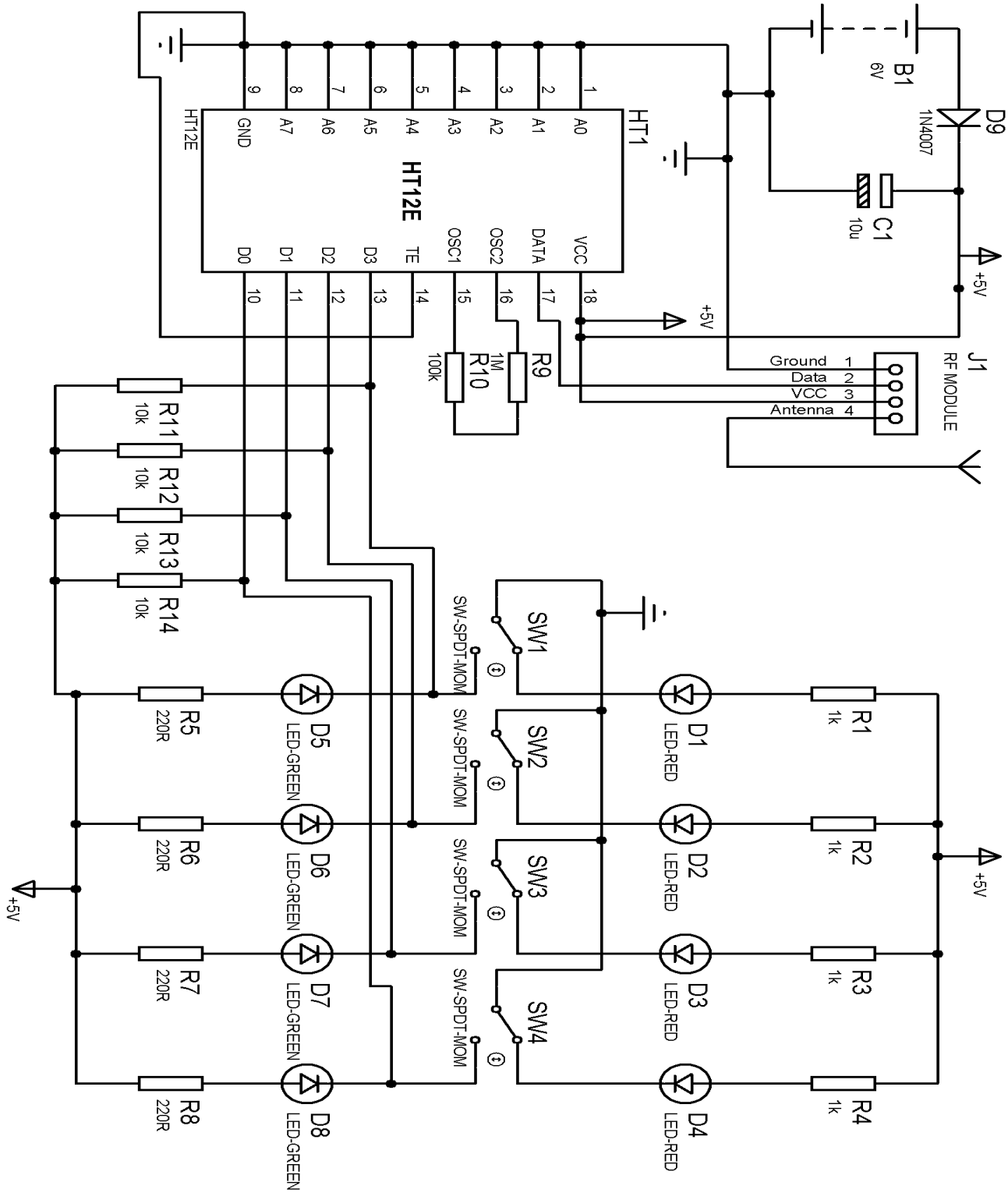
8051 series Microcontroller, LEDs, Voltage Regulator, Resistors, Capacitors, Crystal, Diodes, Transformer, IR-LED & Photodiodes, Transistor. RF modules, encoder and decoder ICs

SOFTWARE REQUIREMENTS:

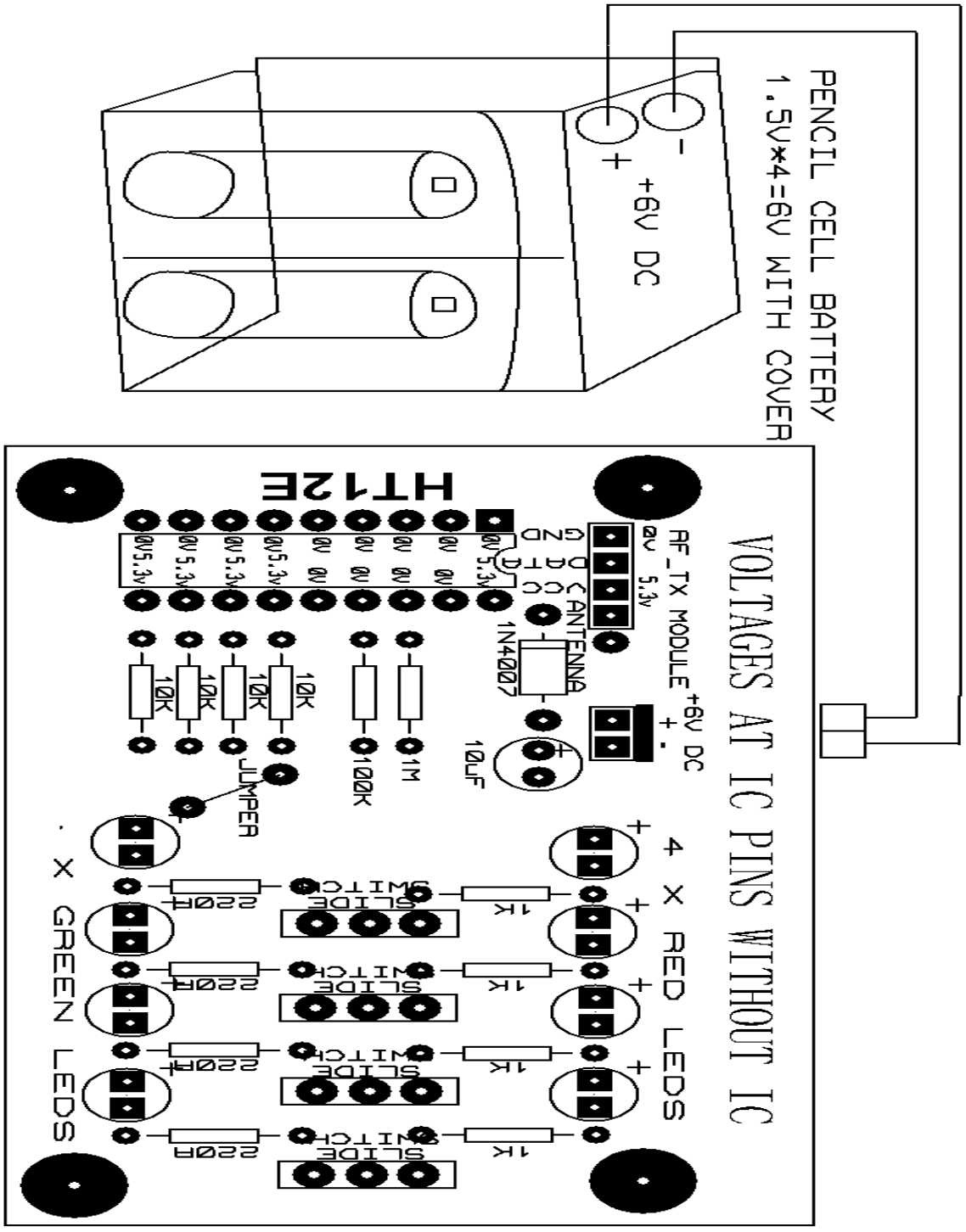
Keil compiler

Language**:** Embedded C or Assembly

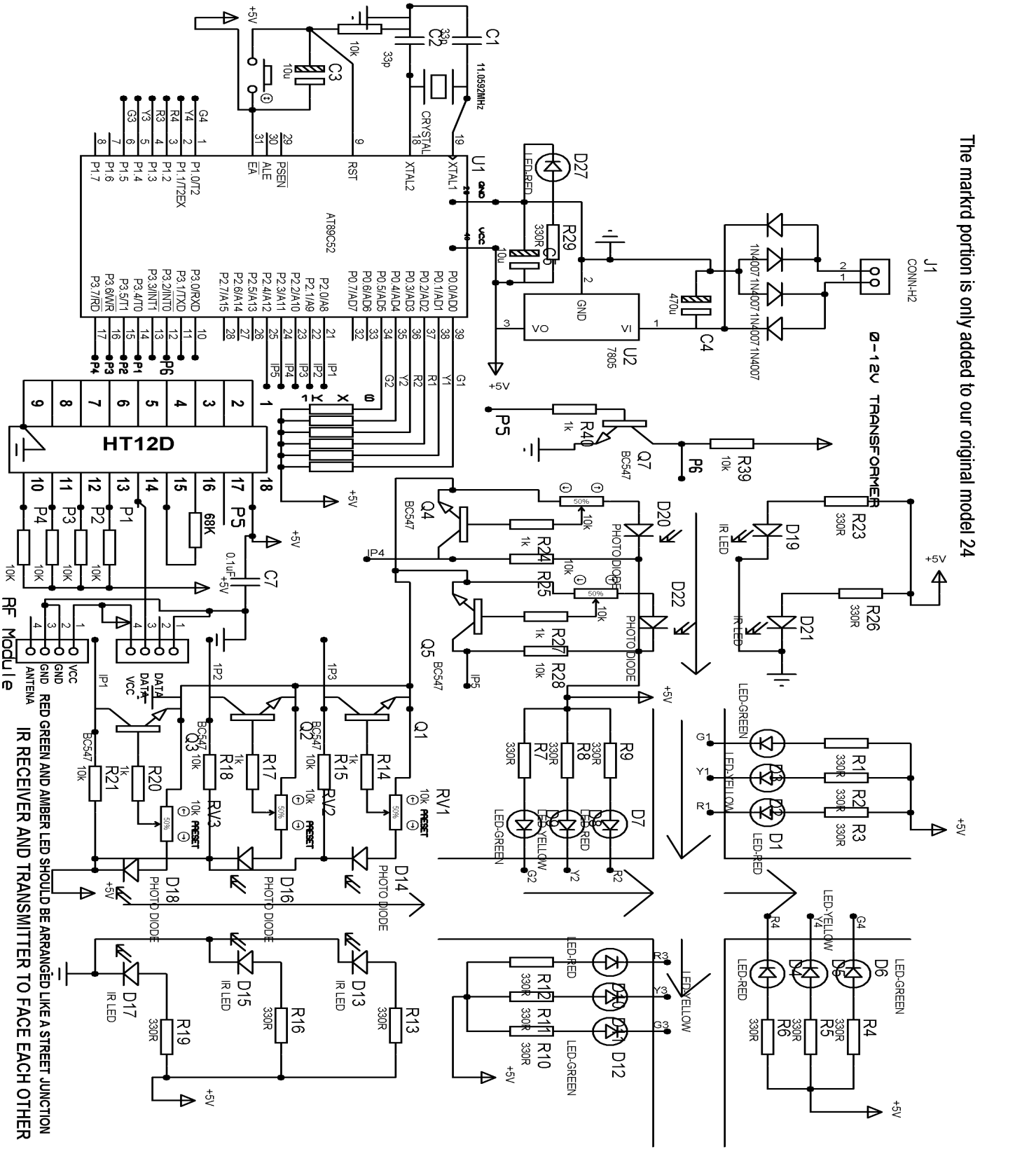
Circuit diagram of transmitter



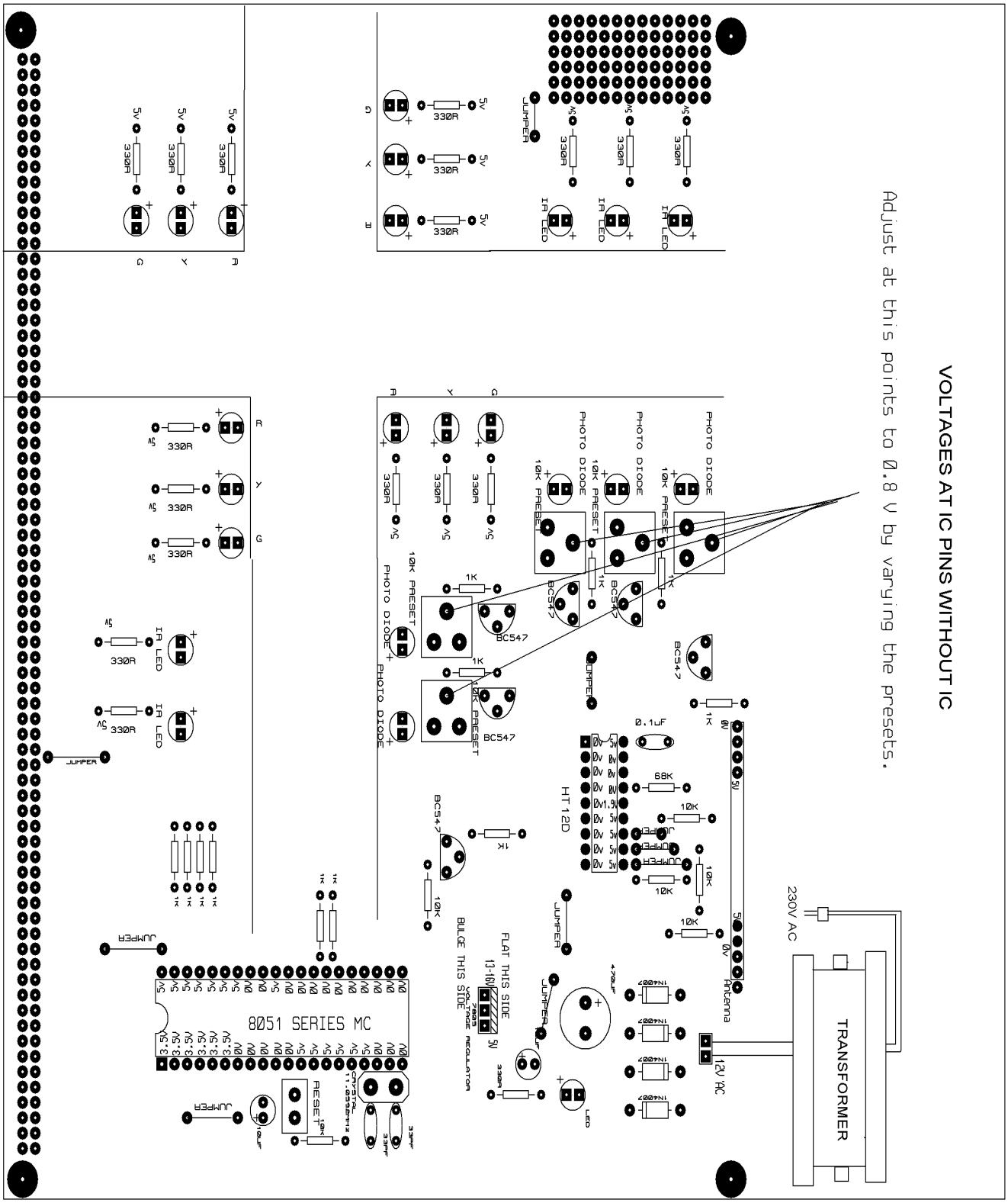
PCB artwork of transmitter



Circuit diagram of receiver



PCB artwork of receiver



transmitter		
Component Name	**Quantity**	**Checked**
Resistors		
220R	4	
10K	4	
1K	4	
1M	1	
100K	1	
Capacitor	1	
10UF/63V	1	
Integrated Circuits		
HT-12E		
IC Bases		
18-PIN BASE	1	
Component Name	**Quantity**	**Checked**
Resistors		
220R	-0.4464286	
10K	-0.7678571	
1K	-1.0892857	
1M	-1.410714286	
100K	-1.732142857	
Capacitor	-2.053571429	
10UF/63V	-2.375	
	-2.696428571	
Integrated Circuits	-3.017857143	
HT-12E	-3.339285714	
IC Bases	-3.660714286	
18-PIN BASE	-3.982142857	

Receiver		
Component Name	**Quantity**	**Checked**
Resistors		
330R	18	
10K	7	
1K	12	
10K PRESET	5	
68K	1	
Capacitors		
470uF/35V	1	
10uF/63V	2	
33pF Ceramic	2	
0.1UF/104 Ceramic	1	
Integrated Circuits		
7805	1	
AT89S52	1	
HT-12D	1	
IC Bases		
40-PIN BASE	1	
18-pin Base	1	
Transistors		
BC547	6	
Diodes		
1N4007	4	
PHOTODIODE	5	
Miscellaneous		
CRYSTAL 11.0592Mhz	1	
LED-RED	5	
LED-YELLOW	4	
LED-GREEN	4	
IR LED	5	
2-PIN PUSH BUTTON	1	
MALE BURGE 2-PIN	1	
POWER CORD	1	
TRANSFORMER 0-12V	1	
HEAT SINK	1	
SCREW NUT FOR HEAT-SINK	1	
4-pin female Burge	2	
4/8-PIN RF Modules	1	
ASSEMBLED PCB (WORKING)	1	
PLAIN PCB	1	
ZERO BOARD	1	
SOLDERING IRON	1	
CUTTER	1	

For complete synopsis, weekly reports, source code, black books
Please mail your complete details on support@makeitortakeit.in
We will mail you within 24hours from the time you mail us.

Name of the student & phone number
PROJECT NAME

Group member1 Group member 3

Group member 2 Group member 4

Group member 5

College name Branch

Note to make your kit /project

You need basic knowledge & logic of components /soldering /disordering /breadboard circuiting/PCB designing/etching.

1. You can download the projects from our website makeitortakeit.in and get started to build one, we help you with the basics of know & how.
2. You can purchase the complete do it yourself kit & assemble it.
3. At the last moment, If you are short on time /if your project is not giving output!!!!!! Readymade project kit is available.
4. **Training (optional)** available if you want us to help u in your projects, it includes.
    - 7 sessions, (timing mutually decided).
    - hands on training on breadboard circuiting ,soldering,desoldering,pcb making ,how to use instruments
    - Stepwise guidance you build your project right from the scratch **.
    - complete documentation/references(hard & soft copy)
    - Plotting and Implementing Scale Model.
    - Troubleshooting.
    - Programming of Controllers
    - PCB Software tool, Hardware Cutting, Drilling and Etching