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WIRELESS WATER LEVEL INDICATOR

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ABSTRACT

In this paper we present the idea of smart water tank management system. Water is the most important Nature's gift to the mankind. Without Water there is no life. Now man understood its importance, especially where water is not easily available. Now this is being managed by the proper manner in city areas where the use of water is more than its availability. 'Water Level Indicator' as clear from it is the top level of the overhead tanks in houses or in small industrial areas. This system can also be used for small RO water plant.

Keywords- *HT12D & HT12E 8-way DIP switch, RF TX module & Rx module*

1. INTRODUCTION

An Water Level Indicator may be defined as a system by which we can get the information of any water reservoir. Water level indicator system is somewhat helpful to reduce the wastage of water from any reservoir, while filling such reservoir. The wire with Black color is connected to VCC of the EAB. The wires with colures Blue, Red, Green & Yellow are adjusted to check Level1, Level2, Level3 and Level4 respectively. Each of these four wires are connected to the amplifier.

A wireless radio frequency (RF) transmitter and receiver can be simply made using HT12D Decoder and HT12E Encoder and ASK RF module. Wireless transmission can be complete by using 433MHz ASK RF Transmitter and Receiver modules. Sustainability of available water source in many reason of the world is now issue. Water mainly used for domestic consumption, agriculture, industrial. This component used to indicate water level.

2. BLOCK DIAGRAM OF TRANSMITTER

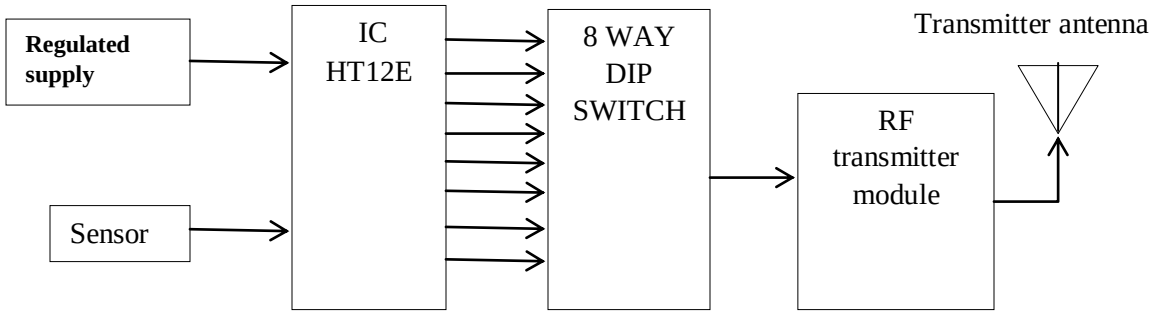

Fig.1 Block diagram of transmitter

HT12E Encoder IC will convert the 4bit parallel data given to pins D0-D3 to serial data will be available at DOUT. This output data is given to ASK RF Transmitter. Address input A0-A7 CAN BE USED to provide data security and can be connect to GND. Data will be transmitted only when the transmitter enable pin is low.1.1Mohm resistor will provide the necessary external resistance for the operation of the internal oscillator of HT12E .

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Connection description

Here, each of the wires of the sensor is connected to an amplifier section. This section consists of an n-p-n transistorBC548, one base resistor (1000 Ohm)and one Emitter resistor (470 Ohm).The sensor's available terminal is connected to one end of the base resistor. The other end of this resistor is connected to the base of the transistor. The collector terminal of the transistor is directly connected to VCC. Emitter resistor is connected in-between Emitter terminal of the transistor and GND. The required output of thisamplifier section will be available from the junction of the emitter and the resistor

3. BLOCK DIAGRAM OF RECEIVER

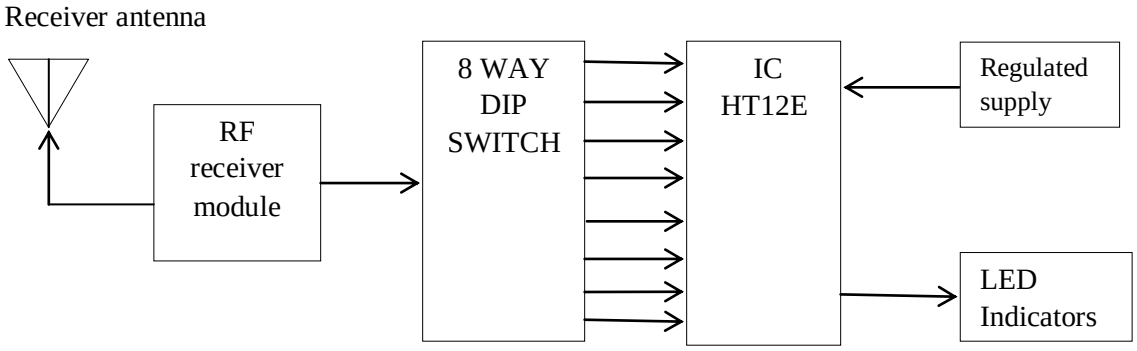

Fig 2: Block Diagram of Receiver Module

The fig 2 shows that the regulated 9volt dc power supply/battery are connected to HT12D.THE HT12D required 0-2.4 DC voltage regulated power supply convert 9volt battery to pass 2.4 volt HT12D.HT12D are 18 pin IC output indicate led pin10-13.ht12d IC pin 1-8 are connect 8 WAY DIP SWITECH pin 18&9 is VDD&VSS.RF 433MHz Receiver module is connect to 8WAY DIP switch. RF 433MHz module connect to receiving antenna function receive the transmit signal pass 8 way switch thorough HT12D and output shows different colure led on/off .

The whole configuration is obviously thought of as to satisfy the needs of most significant working on development of wireless water level devices. One of its advantages is that nothing is missing and nothing is too much. In other words, it is created exactly in accordance to the average user's taste and needs.

Power supply

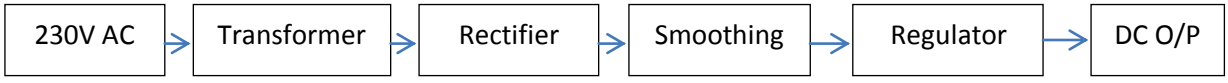

Fig.3 Power supply

Microcontroller required regulated Dc Power supply . It convets high AC voltage into Regulated Dc voltage. It contains Transformer, Rectifier, Filter, Regulator IC.

Transformer - steps down high voltage AC mains to low voltage AC.
Rectifier- converts AC to DC, but the DC output is varying.

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Smoothing **-** smoothest the DC from varying greatly to a small ripple.
Regulator- eliminates ripple by setting DC output to a fixed voltage.

4. HT12E

Pin Description
The pin Description of the IC HT12E was pretty simple to understand with total of 18 pins.

VDD and VSS: Positive and negative power supply pins.
OSC1 and OSC2: Input and output pins of the internal oscillator present inside the IC.
TE: This pin is used for enabling the transmission, a low signal in this pin will enable the transmission of data bits.
A0 – A7: These are the input address pins used for secured transmission of this data. These pins can be connected to VSS for low signal or left open for high state.
AD0 – AD3: This pins are feeding data into the the IC. These pins may be connected to VSS for sending LOW since it is a active low pin
DOUT: The output of the encoder can be obtained through this pin and can be connected to the RF transmitter.

Pin Diagram

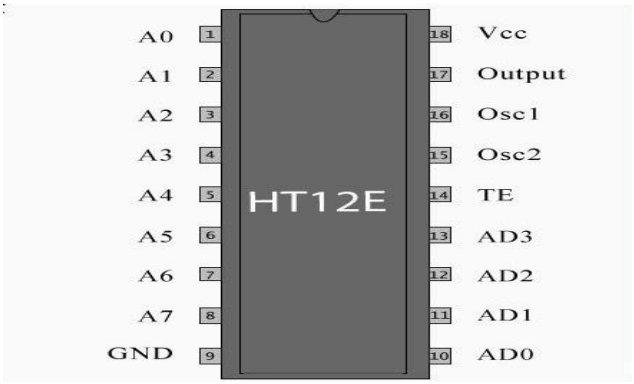

Fig.4 pin diagram of HT12E IC

5. HT12D

Pin Description Of Ht12e
HT12D is a **decoder integrated circuit** that belongs to 2^{12} series of decoders. This series of decoders are mainly used for remote control system applications, like burglar alarm, car door controller, security system etc. It is mainly provided to interface RF and infrared circuits. They are paired with 2^{12} series of encoders. The chosen pair of encoder/decoder should have same number of addresses and data format.

In simple terms, HT12D convert the serial input into parallel outputs. It decodes the serial addresses and data received by, say, an RF receiver, into parallel data and send them to output data pins. The serial input data is compared with the local addresses three times continuously. The input data code is decoded when no error or unparalleled codes are found. A valid transmission in indicated by a high signal at VT pin.

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Pin Diagram

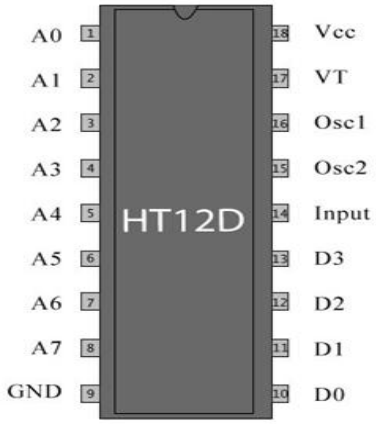

Fig.5 pin diagram of HT12D IC

Advantage of wireless water level indicator

- Low cost.
- Easy to use.
- Small size.
- Low Power Consumption.

Features

- Easy installation
- Low maintains
- Compact designed
- Saves man power
- Avoid seepage of roofs and walls due to overflowing task

Applications of Wireless Water Level Indicator

- Home water tank level indicates.
- Automatic water level controller can be used in hotels.
- Factories, Commercial complexes, Drainage, etc.
- Fuel level indicator in the huge containers in the companies
- Place the system in a suitable area.

6. CONCLUSION

The automatic water level indicator is smart system as all processes occur automatically with continuous update by controller. This system is deprived of any sort of noise and has effective switching action. The application of this project work water level indicator using tank .This system is wireless communication system.

This is a simple model water level indicator which can be made at your home without any cost but it is little so you can use this as model for science fair and technical college

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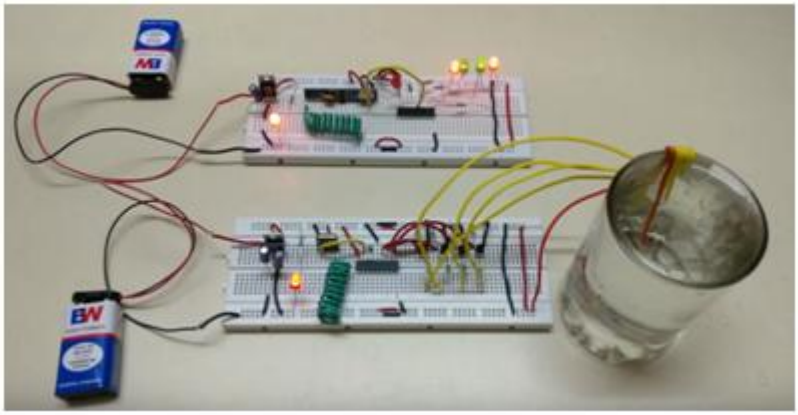

Fig.6 Result Diagram of Wireless Water Level Indicator

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