Proceedings of
INTERNATIONAL CONFERENCE ON COMPUTING, COMMUNICATION AND ENERGY SYSTEMS (ICCCES-16)
In Association with IET, UK & Sponsored by TEQIP-II
29th-30th, Jan. 2016

RADIATION PATTERN MEASURMENT SYSTM USING USB INTERFACING

Suvarna A.Tone
P.N.Vasambekar
Department of Technology,
Shivaji university, kolhapur
suvarnatone@gmail.com

ABSTRACT-In any communication system an antenna plays an important role. It is an interface between the guided wave and the free space wave. The antenna is a device which interfaces a circuit and space. To use any antenna in a communication system either as transmitting or receiving, its gain pattern to be known. The gain and of an antenna is an actual quantity which is less than the directivity D.A. mismatch in feeding the antenna can also reduce the gain. The gain pattern gives the information related to gain and beam width an antenna. We proposed the computerized VHF/UHF antenna gain pattern measurement system.

As serial and parallel interface proved serviceable for close two decades. But as computers become more powerful and the number of kinds of peripherals increased, the older interface becomes a bottle neck of slow communications with limited options for expansions a break with tradition is justified when the desire for enhancement is greater than the inconvenience and expense of change . This is the situation that proposed to development of use

USB is a likely solution any time you want to use a computer to communicate with device outside the computer. the interface is suitable for mass produced, standard peripheral types as well as small volume designs including one of kind of projects. from the users perspective the benefits of USB are ease of use, fast and reliable data transfers, flexibility, low cost and power consumption USB Is versatile enough to be usable with a variety of peripheral types. Instead of having a different connector type and supporting hardware for each peripheral one interface serves many.

Keywords- uhf antenna ,micro controller, rf detector, serial to usb convertor

I. INTRODUCTION-

The serial and parallel interface provides services in earlier days Now a days we use computer with usb interfacing in communication .so the system becomes more reliable and faster.
Complete system is shown in fig a

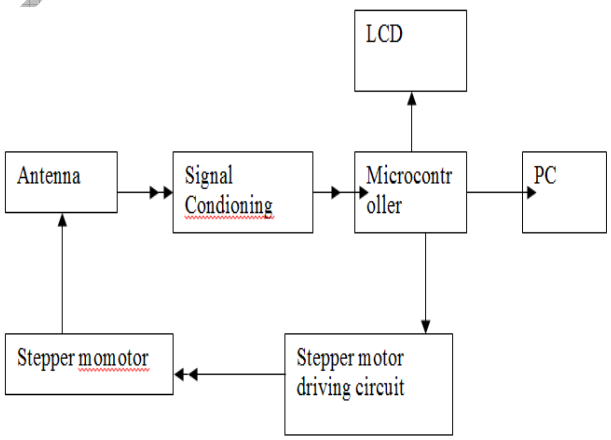


Fig. 1: Block diagram of system

II. SYSTEM ANALYSIS

1.Antenna-
UHF antenna having frequency range 490MHZ is designed.
2.SIGNAl CONDITIONING-

Here we use RF detector IC LT 5534 for signal conditioning.LT 5534 is a logarithmic based Detector capable of measuring an r.f signal over the frequency range from 50 MHZ. to 3 GHZ. The 60 db linear dynamic range is achieved with very stable output over the full temperature range from -40 c to 85c.The RF signal in a decibel scale is precisely converted into a d.c voltage on a linear scale.

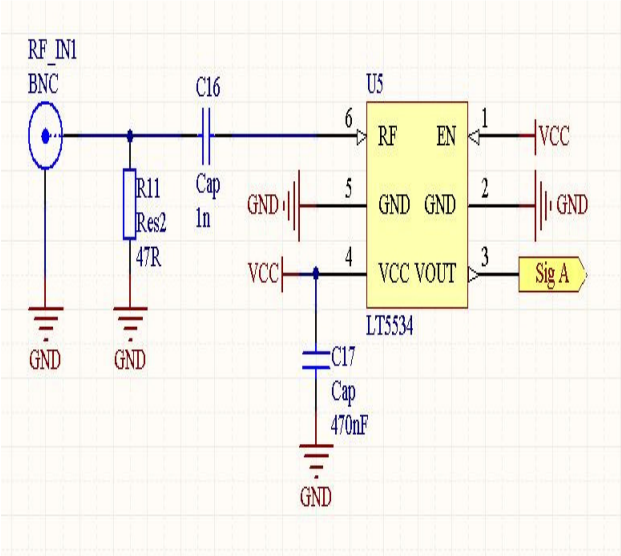


Fig.2 : RF Detector

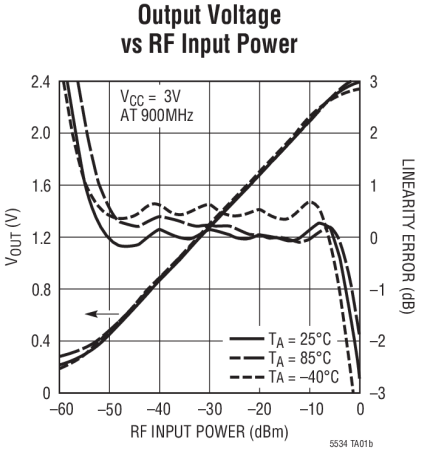


Fig. 3: Graph

1) Microcontroller-(PIC 16F877A)

The analog signal coupled to the micro controller will be digitized and passed to LCD. It will also be coupled to PC Via USB the angular position of the antenna will be changed through stepper motor.

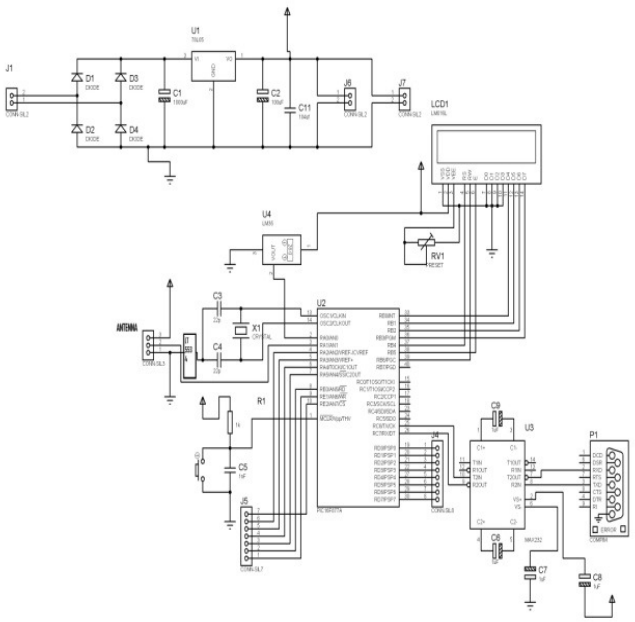
2) Stepper Motor Driving Circuit.

The received stepper motor bit pattern for changing the angular position of antenna will be brought to the required level sufficient to drive the stepper motor.ULN 2003 IC is used as a stepper motor driver.

3)Stepper motor-
The angular position of antenna is changed by the stepper motor .here LUNA stepper motor is used which uses full stepping the minimum step angle 1 .
.

4)Serial to USB convertor-
Max232 is dual driver/receiver that includes a capacitive voltage generator to supply TIA/EIA-232-F voltage levels from a single 5 volt supply. Each receiver converts TIA/EIA-232-F inputs to 5 volts TTL/CMOS input levels into TIA/EIA-232-F levels

4)PC-
The signal received from the antenna through the USB will be recorded with the antenna position required software will be developed in VB to manipulated the received data



3) LCD

LCD will be used to monitor the data when the system is to be used as a standalone system.

FIG.4 Circuit diagram

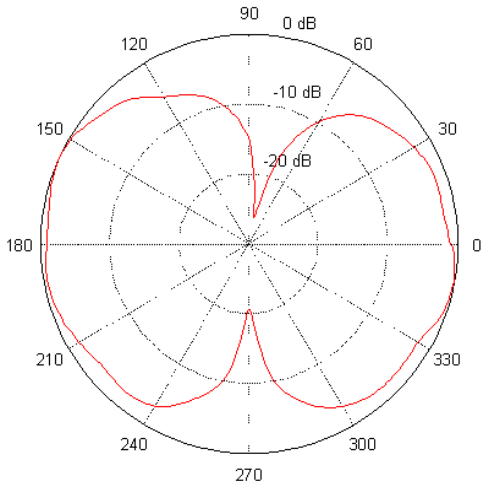


Fig. 5: Result Analysis

III. CONCLUSION-

With proposed system we can record antenna radiation pattern via USB communication which is suitable for outdoor direction with more accuracy.

IV. REFERENCES:

1]Analog Devices, www.analog.com.

2]John D Kraus, Ronald J Marhefka, Ahmad S Khan.: Antennas and
Wave Propagation, Tata McGraw Hill Special Indian Edition
2010.]

3] C.A Balanis Antenna Theory: Analysis and DeSign, 3'd Edition
John Wiley and Sons, 1nc.,2005.

4] Muhammad Ali Mazadi, Janice Gillispie Mazadi and Rolin D.
McKinlay: The 805i Microcontroller and Embedded System Using
Assembly And C, Perason (2009).

5] Edgar Alejandro Andrade Gonzalez et al. , "Control System for the
antenna positioning, " Proceeding of the 7'h WSEAS international
conference on applied informatics and communication, Athens,
Greece, August 24-26 2007 .

6]www.linear.com