P10 WIRELESS ELECTRONIC NOTICE BOARD

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Abstract : — Now a days notice board is required in many institutes. A notice board display is used to display the message / information sent by the higher authorities of the institute. Traditionally, there were notice boards where any information or notice had to be stick daily. This becomes tedious and requires daily maintenance. Here this paper is dealing with wireless P10 Electronic notice board using Bluetooth. Whenever a message is sent from the user's android application device, the message will be displayed on wireless electronic notice board. This message can be sent from any tablet / smart-phone etc. with Android OS upon a GUI based on touch screen operation. When the user is sending the message from android application device this will be received by the Bluetooth module. As the Bluetooth module is connected to Arduino board, it will receive the message and send to LED display Module P10.

Key words—: Arduino, Bluetooth HC05, P10 LED display, Android Phone, Mobile App SPP pro.

I. INTRODUCTION

The main objective of the project is to develop a wireless notice board that displays notices when a message is sent from the user's android application device. Remote operation is achieved by any smart-phone/Tablet etc., with Android OS.

While the user sends the message from the android application device, it is received and retrieved by the Bluetooth device at the display unit. The Bluetooth access password will only be known to the user. It is then sent to the microcontroller that further displays the notice sent from the user on to the electronic notice board which is equipped with a LED Matrix display. It uses a microcontroller from Atmega 328.

II. BLOCK DIAGRAM

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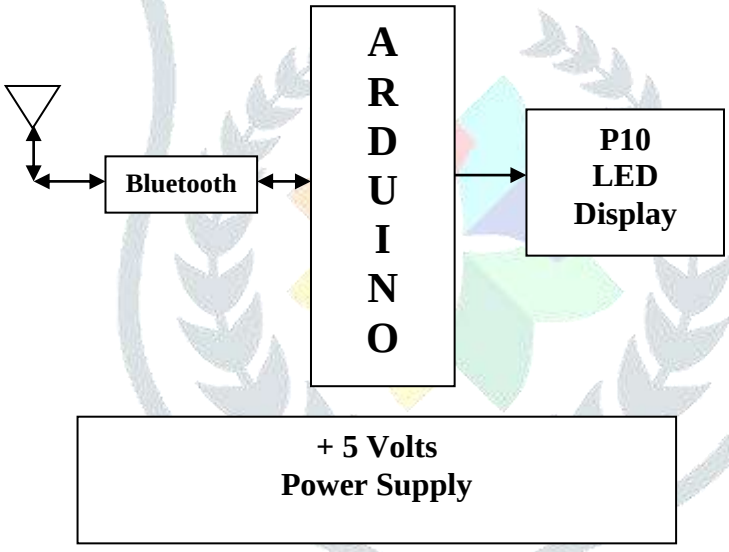

III. BLOCK DIAGRAM DESCRIPTION

ARDUINO BOARD.

Arduino Board is important in our project. It receives the data from Bluetooth, ad gives signal to P10 LED display. Arduino uses Atmega 328 AVR microcontroller.

Arduino is an open-source platform used for building electronics projects. Arduino consists of both a physical programmable circuit board and a piece of software, or IDE (Integrated Development Environment) that runs on your computer, used to write and upload computer code to the physical board. The Arduino platform has become quite popular with people just starting out with electronics, and for good reason. Unlike most previous programmable circuit boards, the Arduino does not need a separate piece of hardware (called a programmer) in order to load new code onto the board – you can simply use a USB cable. Additionally, the Arduino IDE uses a simplified version of C++, making it easier to learn to program.

P10 LED DISPLAY:

This Large, bright 512 LED matrix panel has on board controller circuitry designed to make it easy to use straight from your board. Clocks, status displays, graphics readouts and all kind of impressive display project are easy to create using this display. To make it really easy to get started we include a breakout board and ribbon cable along with the display module, so you can plug it straight in to an Arduino - compatible board and start playing with it right away.

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POWER SUPPLY:

Our project requires 5 Volts and 10 Amp current. So we are using SMPS of 5V/10 Amp.

Bluetooth Module

It acts as communication device. The serial text format data from mobile is given to the microcontroller through the Bluetooth. We are using Bluetooth HC05. It operates on 9600 bits / second.

IV. CIRCUIT DIAGRAM

V. Circuit Design

In our project we are using Atmega 328 as CPU. Atmega 328 micro-controller requires some extra supporting hardware like + 5 volts power supply, RESET and Clock generator.

Power supply

For getting +5 volts supply we are using SMPS. The input to SMPS is 230Vac and output is +5Volt.

POR and Manual RESET:

When we switch ON the power supply of the CPU board then micro-controller must be RESET to start the program execution from 0000H memory location. Therefore POR is must. POR means Power On Reset. It is inbuilt in IC.

Some times we requires manual RESET. For this purpose one push to ON tact switch is used. When you press this tact switch then logic LOW signal is given to the RESET pin of the Atmega 328.

Clock Generator:

The clock frequency of the Atmega 328 Micro-controller is 16 Mhz. It requires two additional capacitors to generate the starting spike pulse. The capacitor used is 22pF

VI. Project Software

```
//64X32 - P10 LED Display Board
#include <Arial14.h>
#include <Arial_black_16.h>
#include <DMD.h>
#include <SPI.h>
#include "TimerOne.h"
#define DISPLAYS_ACROSS 2
#define DISPLAYS_DOWN 1
DMD dmd( DISPLAYS_ACROSS , DISPLAYS_DOWN );
void setup()
{  Serial.begin(9600);
  Timer1.initialize( 2000 );
  Timer1.attachInterrupt( ScanDMD );
  dmd.clearScreen( true );
}
String textToScroll="WELCOME TO B.V.I.O.T. EXTC 2017-18";
void drawText( String dispString )
{ dmd.clearScreen( true );
  dmd.selectFont( Arial_Black_16 );
  char newString[256];
  int sLength = dispString.length();
  dispString.toCharArray( newString, sLength+1 );
  dmd.drawMarquee( newString , sLength , ( 32*DISPLAYS_ACROSS )-1 ,0);
  long start=millis();
  long timer=start;
```

```
  long timer2=start;
  boolean ret=false;
  while( !ret )
  { if ( ( timer+20 ) < millis() )
     {ret=dmd.stepMarquee( -1 , 0 );
      timer=millis();
     }
  }
}

void ReadMSG()
{  if(Serial.available()>0)
  {    textToScroll = "";
       while (Serial.available() > 0)
     {      char inChar = Serial.read();
             textToScroll += inChar;
       }
  }
}
void loop()
{      ReadMSG();
      drawText(textToScroll);
}
```

VII. CONCLUSION

As the technology is changes every day the, display board systems are changing from normal display to digital LED display. Further to Wireless LED display units. In this we are using Bluetooth technology, so doesn't depend on any mobile company for mobile network as well as there is no charge for sending the message to notice board.

VIII. REFERENCES

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