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IOT BASED TEXTING WITH PERSON'S LOCATIONS

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Abstract:

Internet of Things (IOT) is extension of networking access through web assessment communication, connection, and Internetworking between varied devices or physical objects additionally framed as "Things." During this proposed work the system tend to additionally give fault detection and correction in any devices Connected to the present system mechanically. Now a days as a result of large advancement in wireless device network and different computation technologies, it's attainable to supply flexible and low value home automation system. It can be used for person status and which location by using GPS. During this system we tend to use prediction to search out the desired answer if any downside occurs in any device connected to the system. Internet of Things (IOT) technology is used in this project.

Keywords: IOT, GPS, Physical Objects, Fault Detection and Correction.

Introduction:

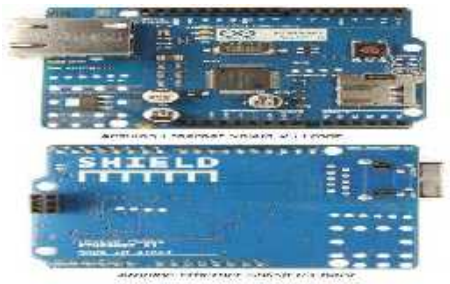
This paper proposed to design a system that works using GPS and IOT technology. This system built based on embedded system, used for person status and locations by using Global Positioning System (GPS) and Internet of Things (IOT). All the data transferred to the IOT devices. This proposed technology is used for report the person's status and locations of the place.

Specification of Ethernet Shield:

Requires and Arduino board (not included) Operating voltage 5V, (supplied from the Arduino Board) Ethernet Controller: W5100 with internal 16K buffer Connection speed: 10/100Mb Connection with Arduino on SPI port.

The Arduino Ethernet Shield allows an Arduino board to connect to the internet. It is based on the WiznetW5100 Ethernet chip (datasheet).(1) The Wiznet W5100 provides a network (IP) stack capable of both TCP and UDP. It supports up to four simultaneous socket connections. Use the Ethernet library to write sketches which connect to the internet using the shield. The Ethernet shield connects to an Arduino board using long wire-wrap headers which extend through the shield.(2-4) This keeps the pin layout intact and allows another shield to be The most recent revision of the board exposes the 1.0 pin out on rev 3 of the Arduino UNO board. The Ethernet Shield has a standard RJ-45 connection, with an integrated line transformer and Power over Ethernet enabled. The onboard microSD card reader is accessible through the SD Library. When working with this library, SS is on Pin 4. The original revision of the shield contained a full-size SD card slot; this is not supported top.(5-7).

Fig 1.1 R3 Front &R3 Back view of Arduino Ethernet shield



The most recent revision of the board exposes the 1.0 pin out on rev 3 of the Arduino UNO board. The Ethernet Shield has a standard RJ-45 connection, with an integrated line transformer and Power over Ethernet enabled. There is an onboard micro-SD card slot, which can be used to store files for serving over the network. It incompatible with the Arduino Uno and Mega (using the Ethernet library). The onboard microSD card reader is accessible through the SD Library. When working with this library, SS is on Pin 4. The original revision of the shield contained a full-size SD card slot; this is not supported.(8-11)

The shield also includes a reset controller, to ensure that the W5100 Ethernet module is properly reset on power-up. Previous revisions of the shield were not compatible with the Mega and need to be manually reset after power-up. The current shield has a Power over Ethernet (POE) module designed to extract power from a conventional

Twisted Pair Category 5 Ethernet Cable:

IEEE802.3af compliant

Low output ripple and noise (100mVpp)

Input voltage range 36V to 57V

Overload and short-circuit protection 9V Output

High efficiency DC/DC converter: typ 75% @ 50% load

1500V isolation (input to output)

NB: the Power over Ethernet module is proprietary hardware not made by Arduino; it is a third party accessory. For more information, see the datasheet

The shield does not come with the POE module built in; it is a separate component that must be added on. Arduino communicates with both the W5100 and SD card using the SPI bus (through the ICSP header). This is on digital pins 11, 12, and 13 on the Duemilanove and pins 50, 51, and 52 on the Mega. On both boards, pin 10 is used to select the W5100 and pin 4 for the SD card. These pins cannot be used for general I/O. On the Mega, the hardware SS pin, 53, is not used to select either the W5100 or the SD card, but it must be kept as an output or the SPI interface won't work(17-19)

Note that because the W5100 and SD card share the SPI bus, only one can be active at a time. If you are using both peripherals in your program, this should be taken care of by the corresponding libraries. If you're not using one of the peripherals in your program, however, you'll need to explicitly deselect it. To do this with the SD card, set pin 4 as an output and write a high to it. For the W5100, set digital pin 10 as a high output.

The shield provides a standard RJ45 Ethernet jack.

The reset button on the shield resets both the W5100 and the Arduino board.(12-16)

The shield contains a number of informational LEDs:

PWR: indicates that the board and shield are powered

LINK : indicates the presence of a network link and flashes when the shield transmits or receives data

FULLD: indicates that the network connection is full duplex

100M: indicates the presence of a 100 Mb/s network connection (as opposed to 10 Mb/s)

RX: flashes when the shield receives data

TX: flashes when the shield sends data

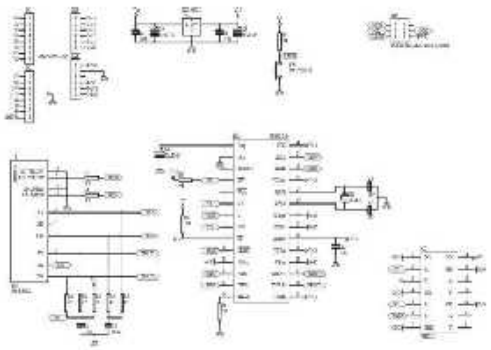
COLL: flashes when network collisions are detected

The solder jumper marked "INT" can be connected to allow the Arduino board to receive interrupt-driven notification of events from the W5100, but this is not supported by the Ethernet library. The jumper connects the INT pin of the W5100 to digital pin 2 of the Arduino. Ethernet library reference By means of judiciously rounding-off the elements of the exact DCT matrix, a DCT approximation was obtained and described in [11]. The resulting 8-point approximation matrix is orthogonal and contains only elements in $\{0, \pm 1\}$. Clearly, It possesses very low arithmetic complexity 11

Schematic diagram of Ethernet shield

Fig 1.2SCHEMATIC DIAGRAM OF

ETHERNET SHIELD



Arduino mega 2560 :

The Arduino Mega 2560 is a microcontroller board based on the ATmega2560 (datasheet). It has 54 digital input/output pins (of which 14 can be used as PWM outputs),16 analog inputs, 4 UARTs (hardware serial ports), a 16 MHz crystal oscillator, a USB Connection, a power jack, an ICSP header, and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started. The Mega is compatible with most shields designed for the Arduino Duemilan over or Diecimila

Fig 1.3 Arduino MEGA 2560

Technical Specification:

Microcontroller ATmega2560
Operating Voltage 5V
Input Voltage (recommended 7-12V Input Voltage (limits) 6-20V
Digital I/O Pins 54 (of which 14 provide PWM output)
Analog Input Pins 16
DC Current per I/O Pin 40 mA DC Current for 3.3V Pin 50 mA
Flash Memory 256 KB of which 8 KB used by bootloader
SRAM 8 KB
EEPROM 4 KB
Clock Speed 16 MHz

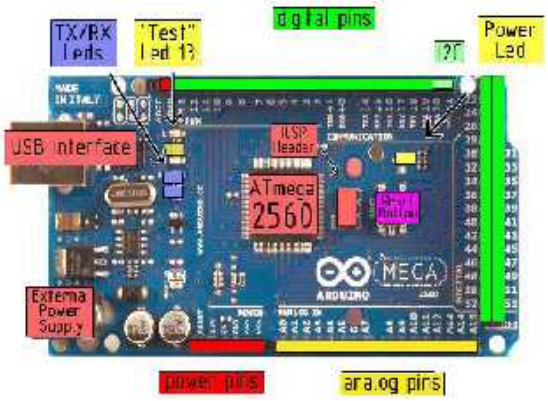


Fig 1.4 SPECIFICATION OF ATMEL 2560 **3.6**

6 Power :

The Arduino Mega2560 can be powered via the USB connection or with an external power supply. The power source isselected automatically. External (non-USB) power can come either from an AC-to-DC adapter (wall-wart) or battery. Theadapter can be connected by plugging a 2.1mm center-positive plug into the board's power jack. Leads from a batterycan be inserted in the Gnd and Vin pin headers of the POWER connector.The board can operate on an external supply of 6 to 20 volts. If supplied with less than 7V, however, the 5V pin may supply less than five volts and the board may be unstable. If using more than 12V, the voltage regulator may overheatand damage the board. The recommended range is 7 to 12 volts.The Mega2560 differs from all preceding boards in that it does not use the FTDI USB-to-serial driver chip. Instead, itfeatures the Atmega8U2 programmed as a USB-to-serial converter (21-30)

The power pins are as follows:

VIN. The input voltage to the Arduino board when it's using an external power source (as opposed to 5 voltsfrom the USB connection or other regulated power source). You can supply voltage through this pin, or, ifsupplying voltage via the power jack, access it through this pin.

5V. The regulated power supply used to power the microcontroller and other components on the board. This can come either from VIN via an on-board regulator, or be supplied by USB or another regulated 5V supply.

3V3. A 3.3 volt supply generated by the on-board regulator. Maximum current draw is 50 mA.

GND. Ground pins.

3.7 Memory The ATmega2560 has 256 KB of flash memory for storing code (of which 8 KB is used for the bootloader), 8 KB of

SRAM and 4 KB of EEPROM (which can be read and written with the EEPROM library).

3.8 INPUT AND OUTPUT :

Each of the 54 digital pins on the Mega can be used as an input or output, using pinMode(), digitalWrite(), and digitalRead() functions. They operate at 5 volts. Each pin can provide or receive a maximum of 40 mA and has an internal pull-up resistor (disconnected by default) of 20-50 kOhms. In addition, some pins have specialized functions:

·**Serial: 0 (RX) and 1 (TX); Serial 1: 19 (RX) and 18 (TX); Serial 2: 17 (RX) and 16 (TX); Serial 3: 15 (RX) and14 (TX).** Used to receive (RX) and transmit (TX) TTL serial data. Pins 0 and 1 are also connected to the corresponding pins of the ATmega8U2 USB-to-TTL Serial chip .

External Interrupts: 2 (interrupt 0), 3 (interrupt 1), 18 (interrupt 5), 19 (interrupt 4), 20 (interrupt 3), and 21 (interrupt 2). These pins can be configured to trigger an interrupt on a low value, a rising or falling edge, or a change in value. See the attach Interrupt() function for details.

PWM: 0 to 13. Provide 8-bit PWM output with the analog Write() function.

SPI: 50 (MISO), 51 (MOSI), 52 (SCK), 53 (SS). These pins support SPI communication, which, although provided by the underlying hardware, is not currently included in the Arduino language. The SPI pins are also broken out on the ICSP header, which is physically compatible with the Duemilanove and Diecimila.

LED: 13. There is a built-in LED connected to digital pin 13. When the pin is HIGH value, the LED is on, when the pin is LOW, it's off.

I2C: 20 (SDA) and 21 (SCL). Support I2C (TWI) communication using the Wire library (documentation on the Wiring website). Note that these pins are not in the same location as the I2C pins on the Duemilanove.The Mega2560 has 16 analog inputs, each of which provide 10 bits of resolution (i.e. 1024 different values). By default they measure from ground to 5 volts, though is it possible to change the upper end of their range using the AREF pin and analog Reference () function. There are a couple of other pins on the board☹31-35)

AREF. Reference voltage for the analoginputs. Used with analog Reference().

Reset. Bring this line LOW to reset

CONCLUSION :

This paper proposed to design a system that works using GPS and IoT technology. This system built based on embedded system, used for person status and locations by using Global Positioning System (GPS) and Internet of Things (IoT). All the data transferred to the IoT devices. This proposed technology is used for report the person's status and locations of the place.(36)

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