# SYNCHRONIZE DIGITAL CLOCK SYSTEM

## NETWORK DIGITAL CLOCK

## MODEL NO :NET-CLK

## VER 1.0

**DYNATEK**

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# 1.0 INTRODUCTION

## 1.0.1 DESCRIPTION :

**Synchronize Digital Clock** system is designed for the applications where accurate synchronize time is required.

Accurate time clock plays an important role to improve productivity of your work place, Increase employee accountability for managing time, Increase efficiency with employees starting and ending their day on time, Improve time – tracking accuracy, even throughout multiple facilities.

These digital clocks can be used as a stand alone display system or they can also be synchronized, so that all the clocks display the uniform time.

All Slave clocks can be connected to PC by LAN network ( Ethernet port). Now your PC acts as a Master and controls all slave clocks by transferring Time data at set intervals.

Connect GPS receiver to get satellite Time Stamping or if PC is having internet connection, it receives Time updates automatically from one of the **Time Server.**

When your PC is not in operation each unit acts as an accurate stand alone clock and gets synchronize when PC comes in operation.

In the event of power failure a long life lithium backup battery is provided it keep internal clock running, though the display go blank accurate time is display when power is restored.

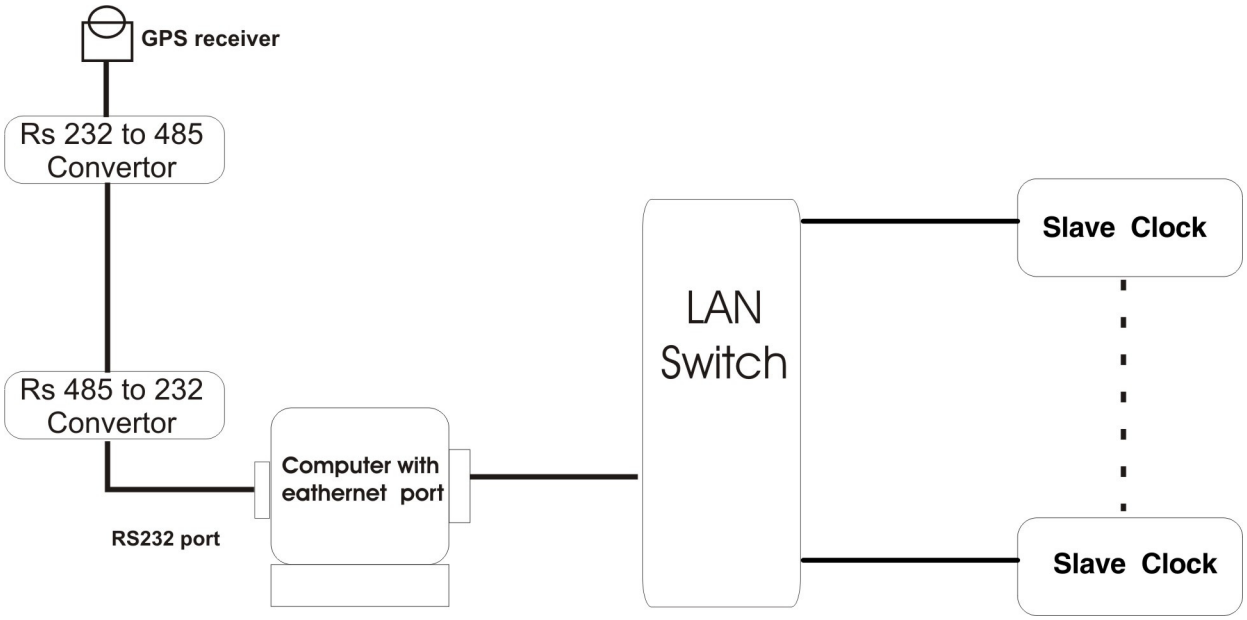



**Fig : 1** **Block diagram of Ethernet based synchronize digital clock system.**

## 1.0.2 Technical specifications

| | | | |
|---|---|---|---|
| 1) | Operating Voltage : | | 110 / 230VAC/50 Hz |
| 2) | Display | : | 2.3 "/4"/6"/8" LED seven segment |
| 3) | Format | : | HH / MM or HH/MM/SS |
| 4) | Mounting | : | Wall mount |
| 7) | Enclosure | : | Heavy duty metallic enclosure with stainless steel front bezel |
| 8) | Communication | : | Ethernet Port (TCP/IP) (70 Meter Max. from Switch) |
| 9) | Speed | : | 10 Mbps |

**This system Consists :**

1) Hardware = : i) Ethernet Digital Clocks
2) Software = : i) DYNATEK GPS Time Software
   ii) DYNATEK IP utility

## 2.0 Installation of System

1) Keep static I/P address reserve for each clock, it do not Support "DHCP".
2) Before installation on site first Configure clock with IP Address, Subnet mask, Gateway and Device name of Each clock by **"DYNATEK I/P Utility"** by cross cable or straight cable.
3) After configured clock, Install all clock on site and connect in LAN network
4) Install "DYNATEK TIME" software properly.
4) Add all I/P add and GMT offset in "DYNATEK Time Software".
5) Switch – ON supply to all Digital clocks.
6) PC will start to send Time data.
7) User can set Clock Time with keys provided on front panel

a) SET : Select and toggle the parameter (HH:MM:SS)
b) UP : Increment selected parameter
c) Enter : Enter key to start clock.
d) User can set 12H and 24H Time format with switch provided at back side.

### 2.0.1 INSTALLATION OF DYNAETK I/P UTILITY SOFTWARE

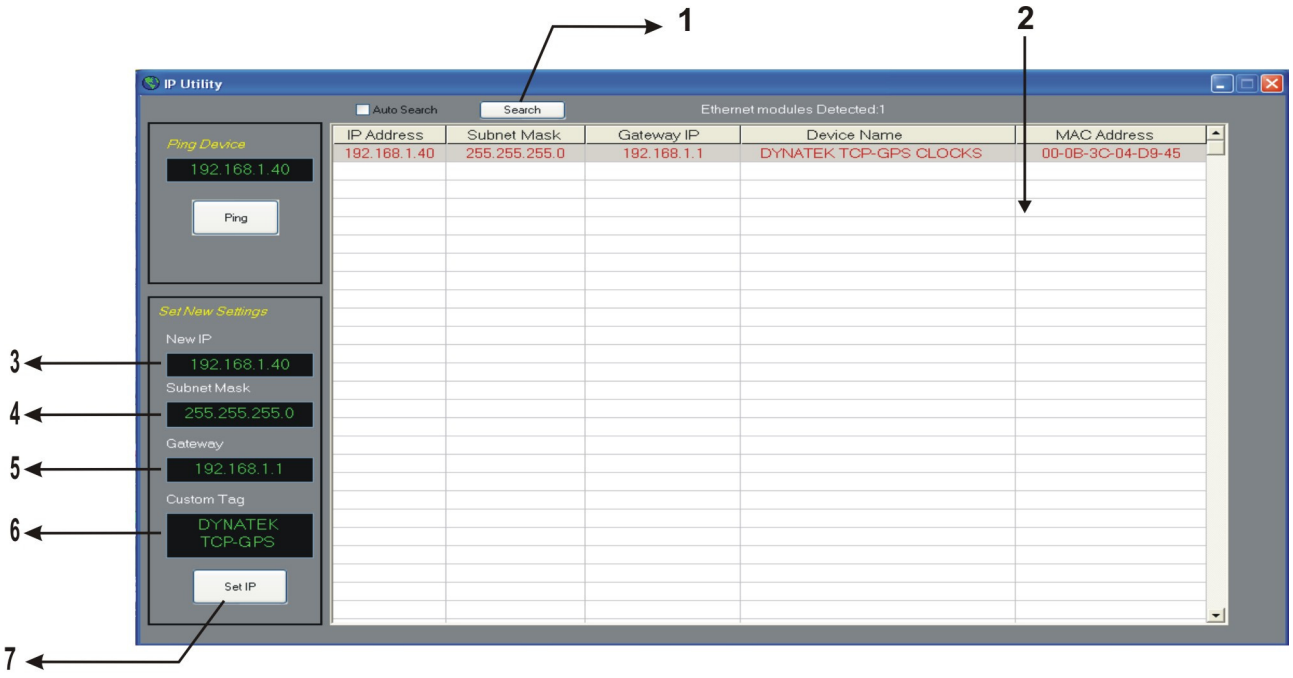
Run setup.exe file in "IPUTILITY" Software folder it will be installed and create shortcut.

**Program description :**

**"DYNATEK IP UTILITY"** software is used to set all parameter of digital clocks i.e.

i) I/P ADD.
ii) SUBNET MASK
iii) GATEWAY
iv ) DEVICE NAME

## "DYNATEK IPUTILITY" software.




**1) Search to all connected clocks in same "LAN only"**

**2) Display for conneted clock in the list to change I/P add, Subnet Mask, Device name.**

**3) Set new I/P add.**

**4) Display to set new subnet Mask.**

**5) Display to set new Gateway**

**6) Display to set new Device name.**

**7) "Set" button to programme new I/P.**

**Note :** This utility works on "UDP" protocol. Connect clock directly to PC or Clocks and PC Should be in same LAN. Press search Buttons to find connected clock in LAN.

## 2.0.2 INSTALLATION OF DYNAETK GPS TIME SOFTWEAR

Run setup.exe file in "GPS PC Software" folder it will installed and create shortcut in startup folder so that when system (PC) gets "ON" "Dynatek GPS Time" software will Automatically get activated.

**Program Information :**

Program FILE:
GPS.EXE
Program Name/Title:
DYNATEK GPS Clock
Target OS:
Windows XP

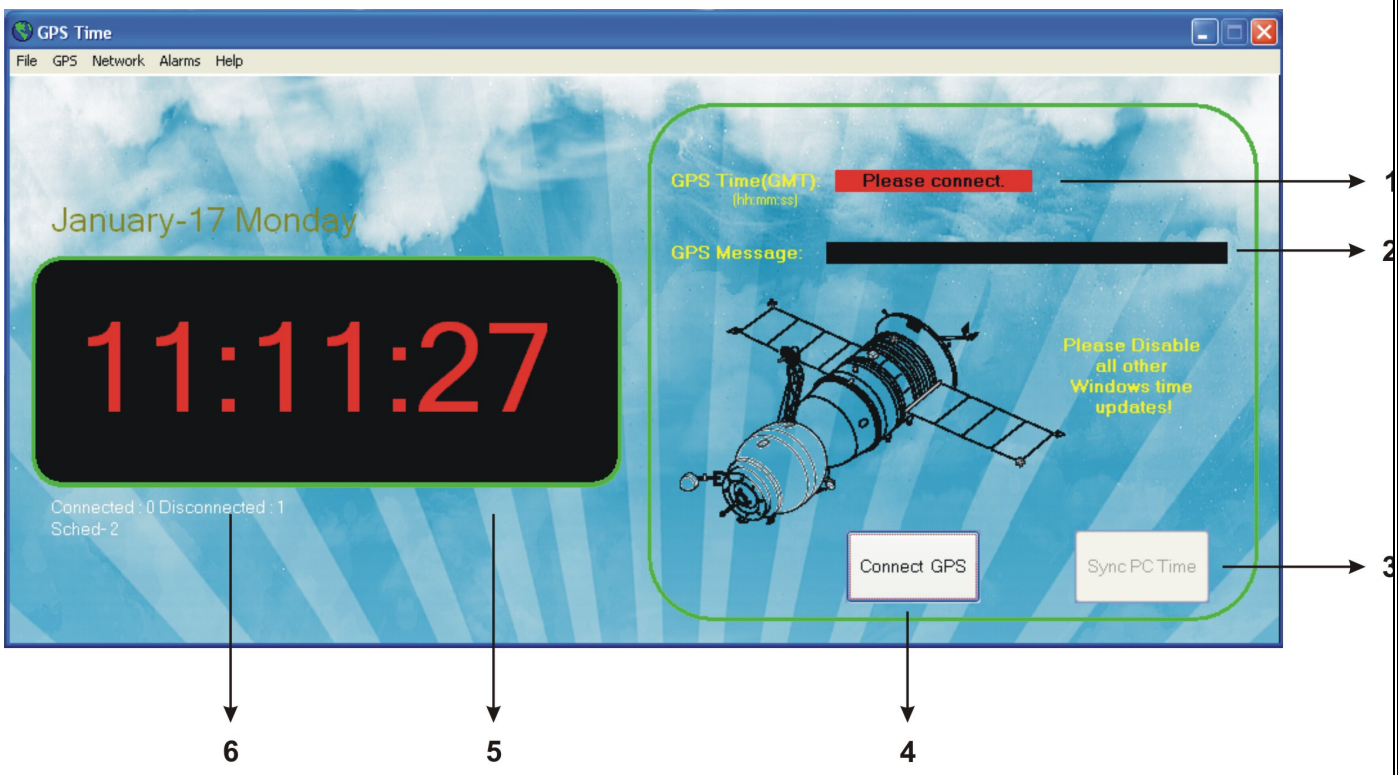
**Program description :**

"DYNATEK GPS TIME" software is used to communicate "PC Time data" with all digital clocks.

**3.0 Configuration parameter:**

FIg: 1 to Fig 5 For **"DYNATEK GPS TIME"** software.

Fig. 1




1) **Display for GMT Time**
2) **Display for GPS string (when GPS receiver get connected)**
3) **Sync PC time to GPS time.**
4) **Connect "GPS receiver" to com part.**
5) **Display for system time.**
6) **Status of connected / disconnected clocks.**

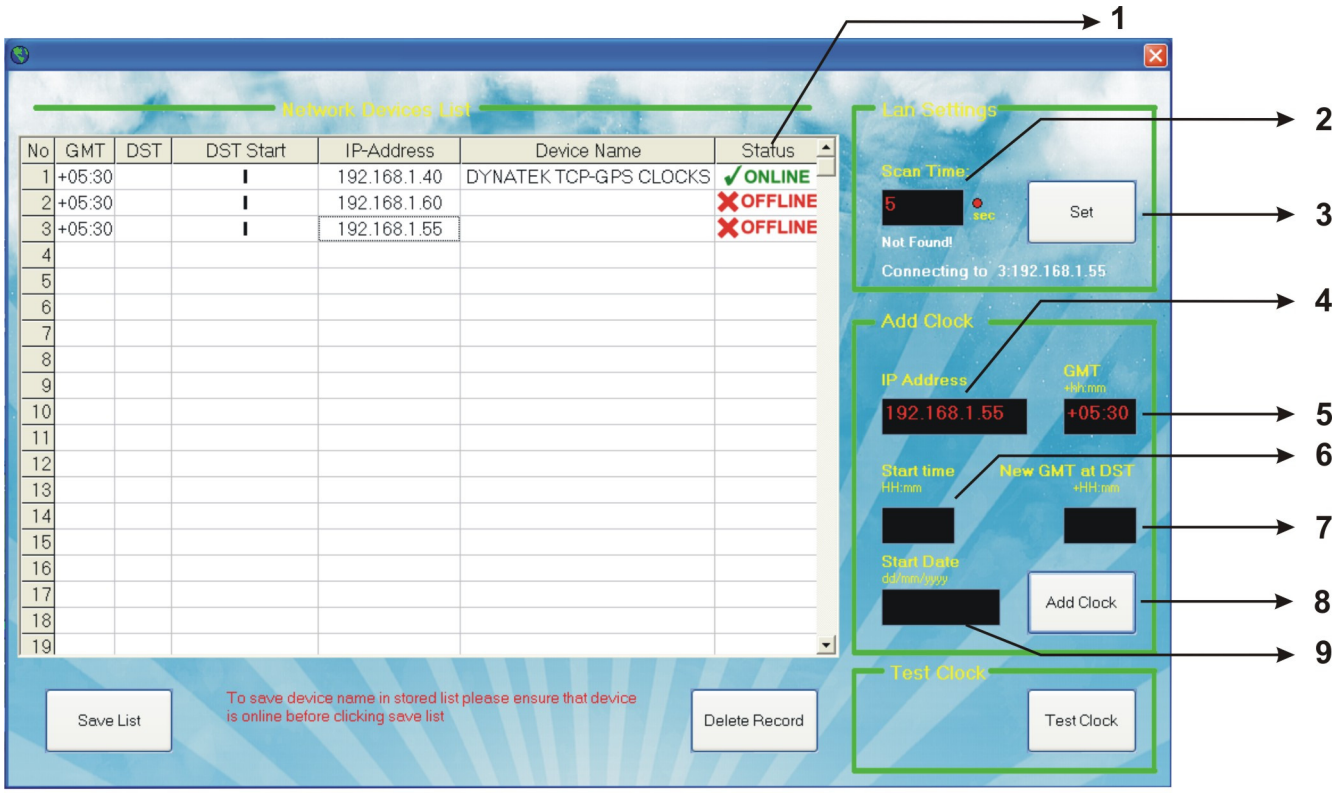
Fig. 2


**1) For setting I/P Address : Enter Network**

↓

**LAN setting Menu.**

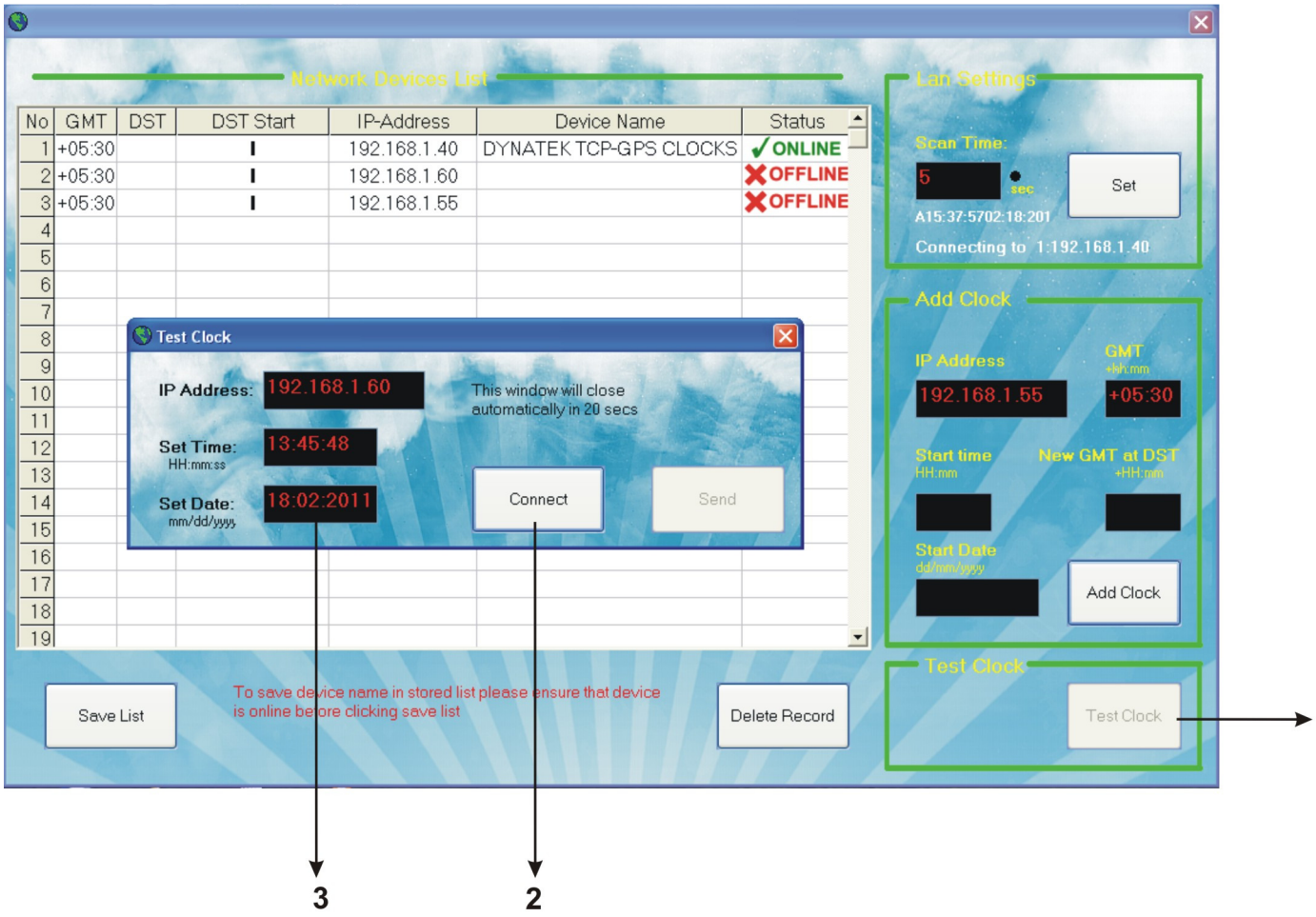
Fig.3




1) **Status of connected & disconnected clock.**
2) **Interval bet'n two scan cycle.**
3) **To update new scan time.**
4) **Display to add new I/P address.**
5) **Display to add "GMT Offset" (i.e. for India : +05:30)**
6) **Display to "Start time for "DST Mode"**
7) **New offset for DST (GMT + DST)**
8) **Button to add net clock.**
9) **Display for 'Start Date" for DST Mode.**

**Note : DST :- Day light Saving Time.**

Fig. 4




**1) Button to Test particular Clock**

**2) Button to connect that particular Clock.**

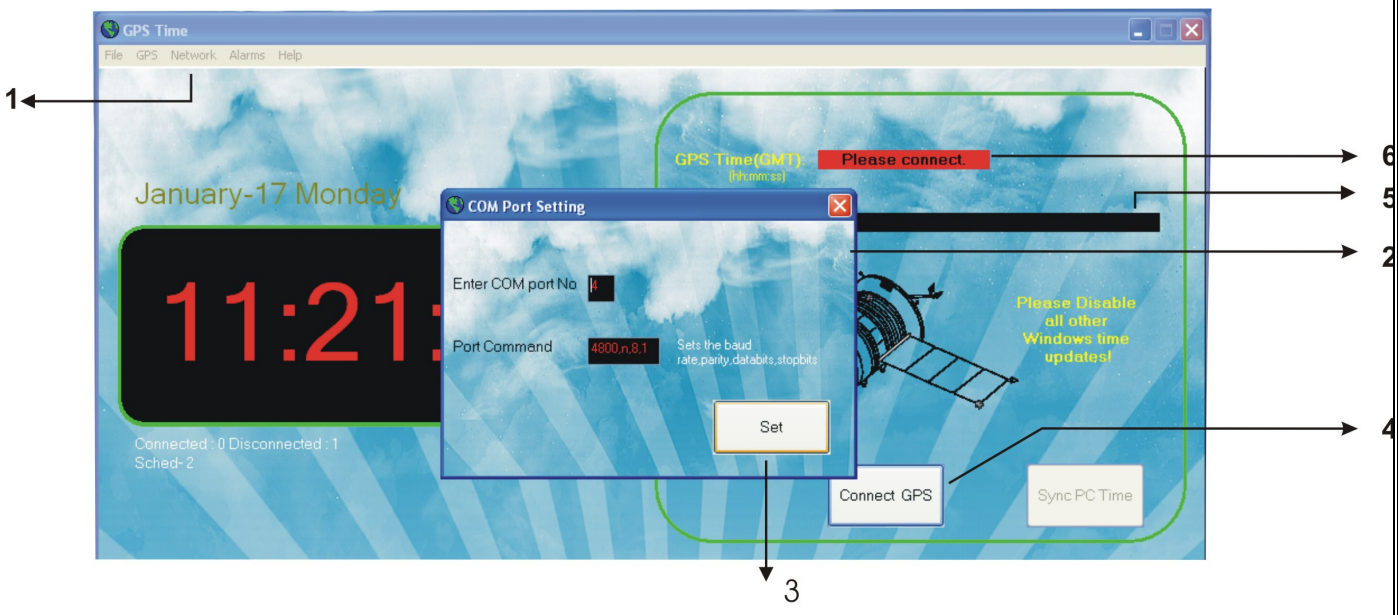
**3) Display for Test Clock I/P add. / Set time & Set date**

**Press connect button as soon as clock get connected "Send" button highlight**

**After pressing "Send" button clock will get setted time.**

**After closing "Test Clock" window, clock will automatically set to "system time".**

Fig. 5




**GPS receiver Installation : Connect GPS receiver to "COM PORT"**

**1) Enter "GPS" ⟶ "COMPORT" setting**

**2) Enter proper "COM PORT"**

**Baud Rate : Rate 9600 / 4800**

**3) "Set" button to update comport setting**

**4) Press "Connect GPS" button.GPS receiver get connected to PC.**

**5) GPS signal strings will be displayed.**

**6) Display for GPS time "GMT"**

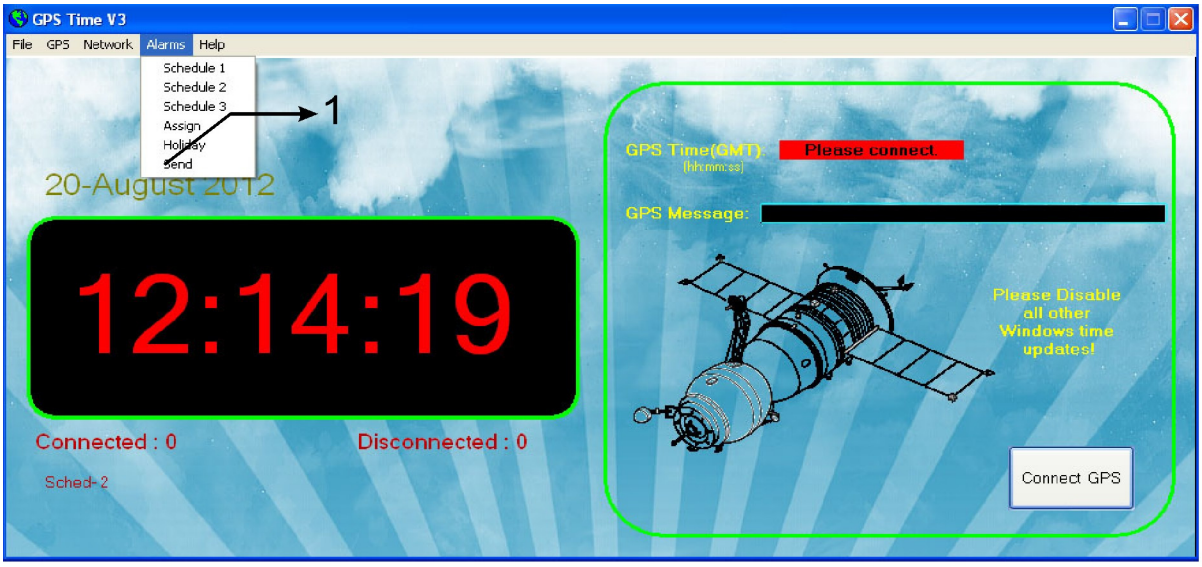



Fig. 7

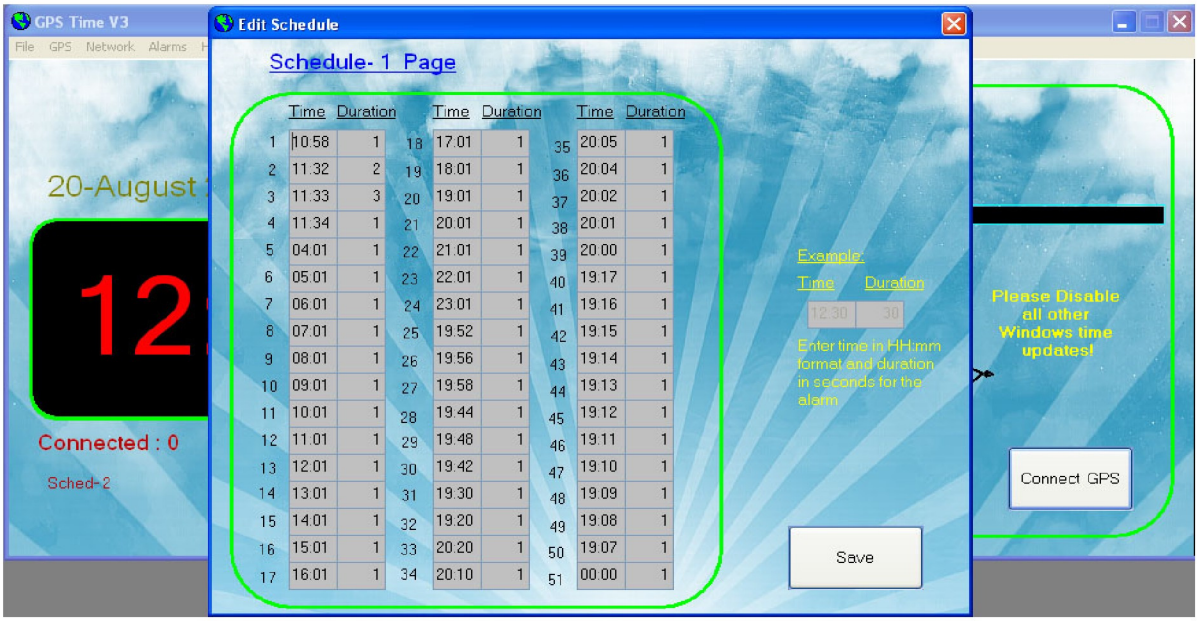



Fig. 8

1) In Alarm menu user can set Alarms for specific time ( HH :MM) and for specific periode upto 60 Sec. Three programeble shedules are there,User can set 50 nos. Alarm in each shedule.

2) User can assign any shedule for any day.

3) User can set holiday for year.

4) After "SEND" command in menu all alarm data to send all connected clock Those are lising in Network > Lan settings > I/P list.

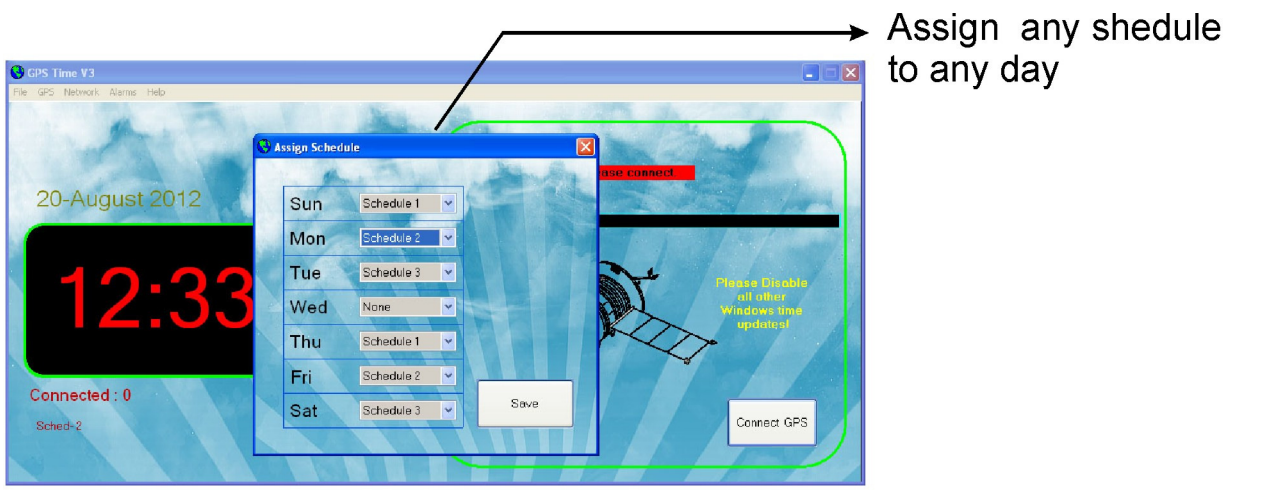

Assign any shedule to any day
GPS Time V3
Assign Schedule
Sun Schedule 1
Mon Schedule 2
Tue Schedule 3
Wed None
Thu Schedule 1
Fri Schedule 2
Sat Schedule 3
Save
20-August 2012
12:33
Connected : 0
Sched-2
Please Disable all other Windows time updates!
Connect GPS

Fig. 9

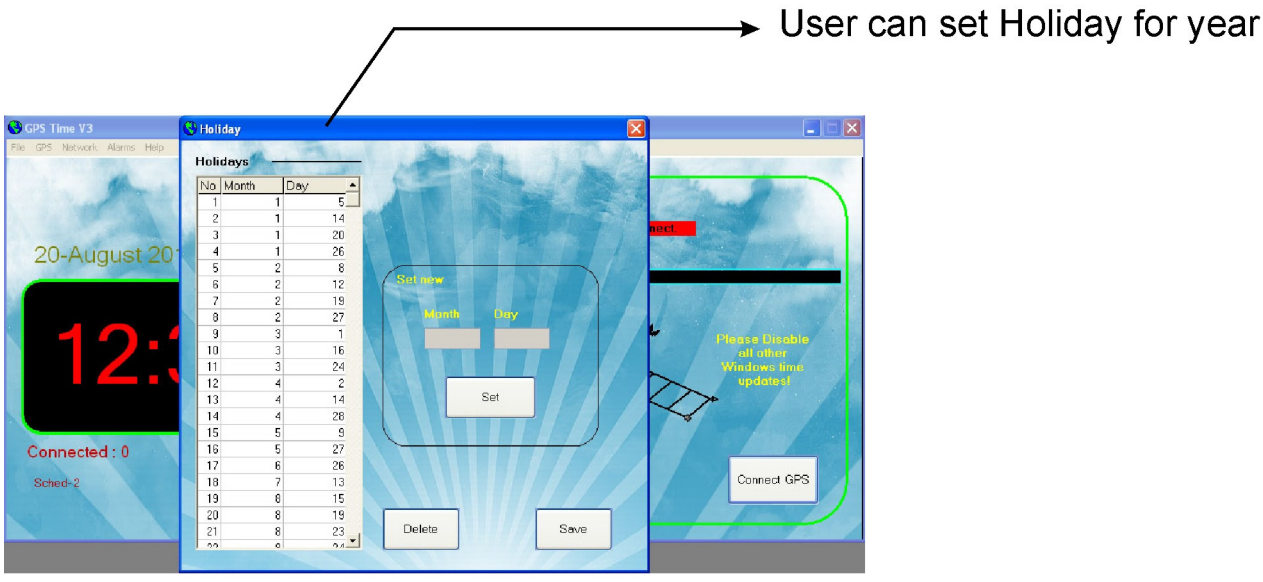

User can set Holiday for year
GPS Time V3
Holiday
Holidays
No Month Day
Set new
Month
Day
Set
Delete
Save
Connected : 0
Sched-2
Please Disable all other Windows time updates!
Connect GPS

Fig. 10