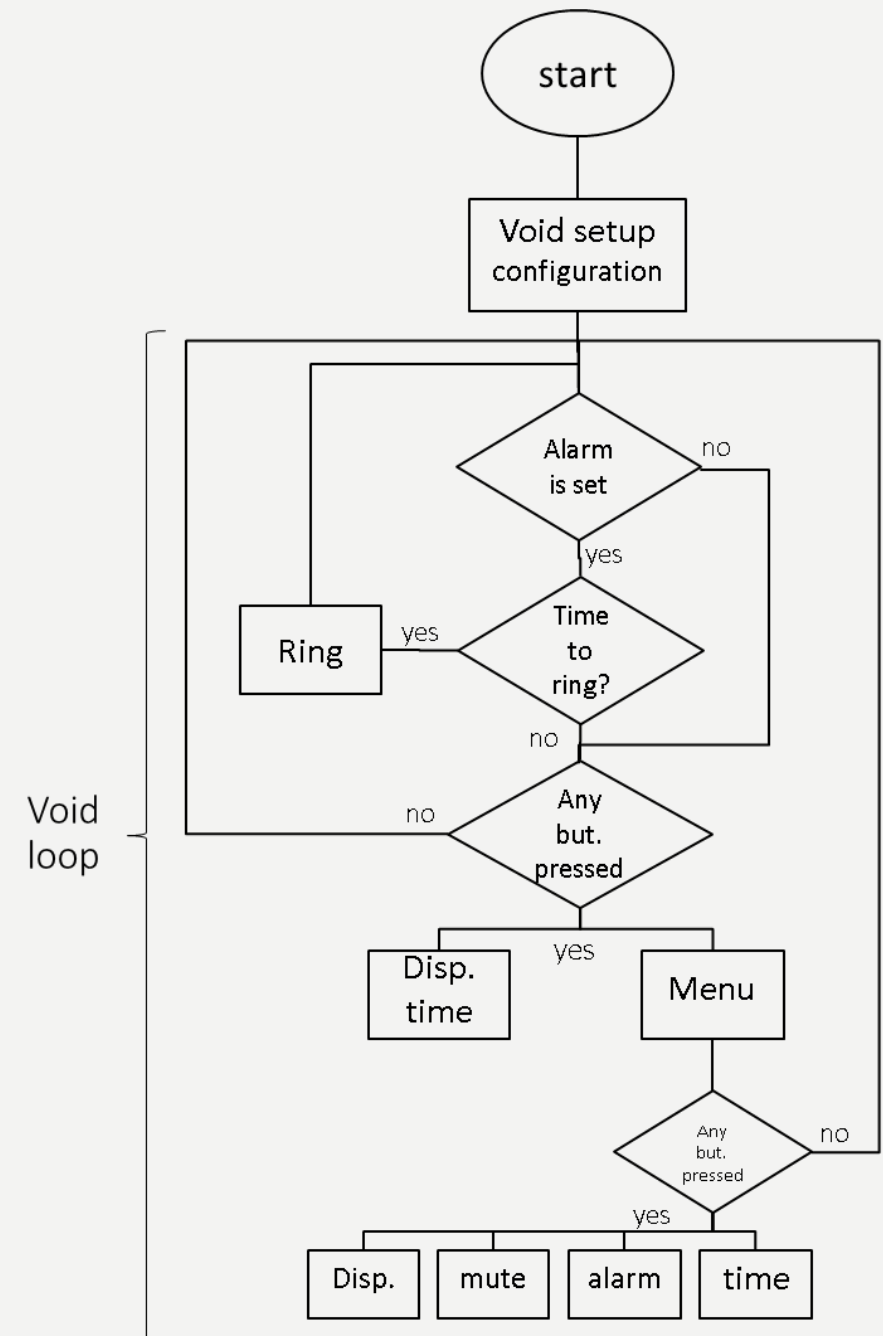# MADANI WATCH

BY MOHAMMAD REZA QASEMI

ABSTRACT

The final goal of this project is to design a smartwatch with the ability of receiving mobile notification as well as showing time, date and temperature. It can also have three alarms which notify user by vibrating.
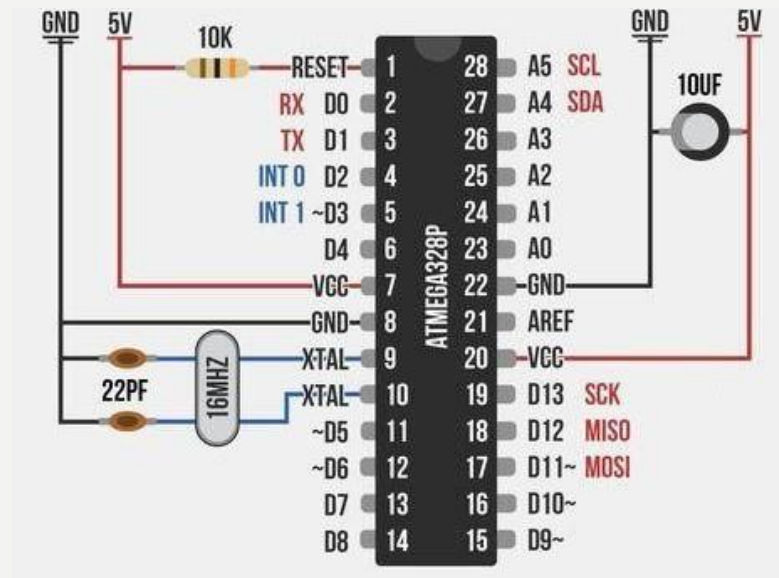
MADANI WATCH by Mohammad Reza Qasemi

OPERATION FLOWCHART

- Here you can see the smartwatch operation flowchart
- Void setup is a function that we set some initial values and parameters (e.g. input and output ports)
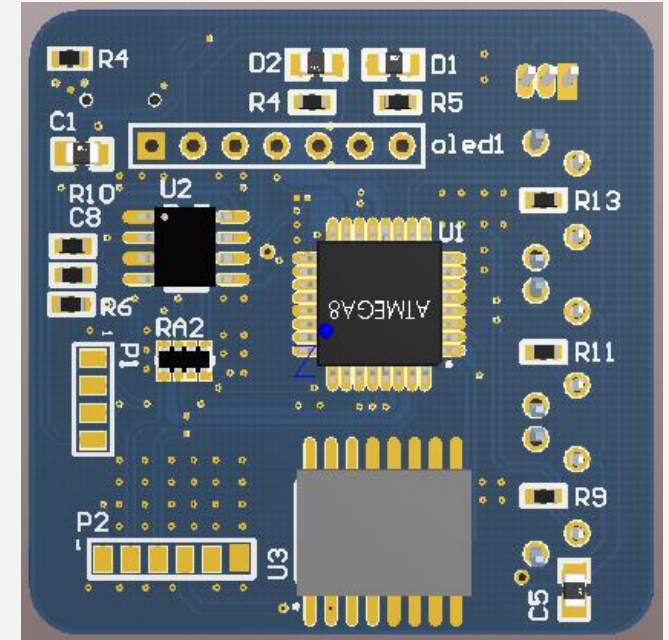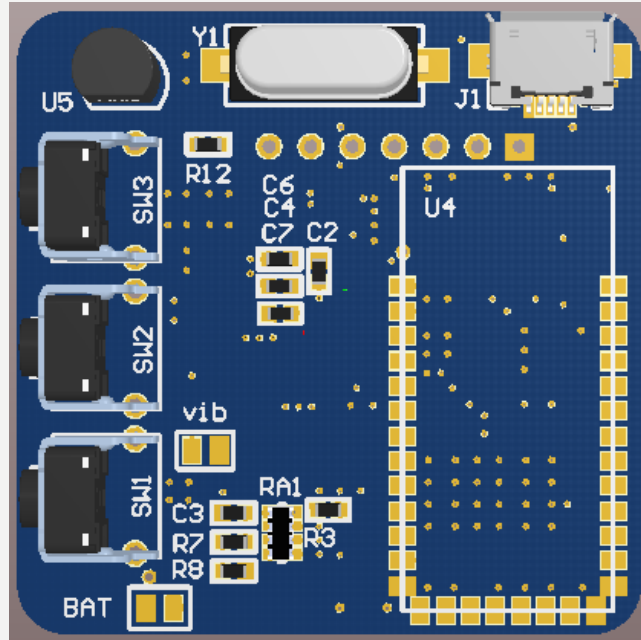- Void loop is a repetitive function that the main code is written in
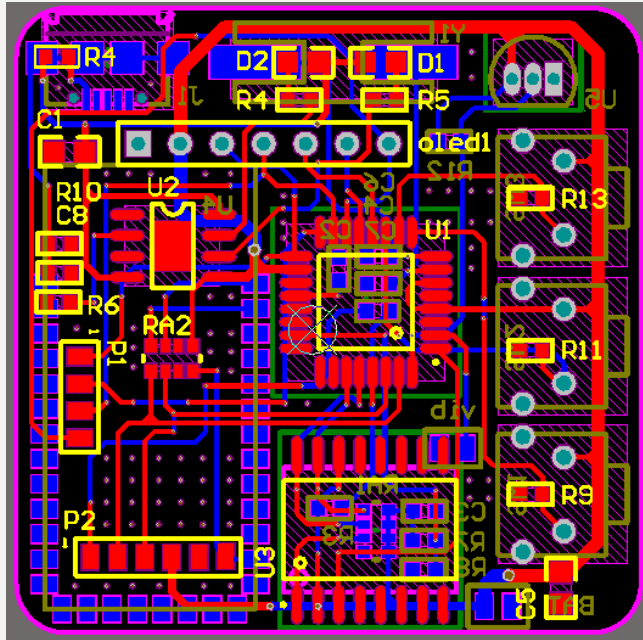
DESIGN

The main idea is simple. We just have to have a simple Arduino board as the main core of the smartwatch to handle the operation and as we can't use the Arduino board itself, we must design something like the schematic below:

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DESIGN

- The design was so challenging because the board size (which is 38mm x 38mm) must be reasonable to be on your hand. So the final design is a little bit compressed.
- The board is 2 layer metalized PCB

2D AND 3D SCHEMATICS

COMPONENTS

- You can see the component that are used in this project:
- 1) Atmega 328p
- 2) Ds18b20 (temp. sensor)
- 3) HC05 (Bluetooth module)
- 4) Ds3231 (RTC)
- 5) Mini USB
- 6) 0.96 inch LCD
- 7) 125 mAh battery
- 8) Vibrator
- 9) Resistors, capacitance and etc.

MANUFACTURE

Once the design was completed, I ordered the PCB to assemble the watch and test the code.

It took time to fix the bugs and reach the final version. The main issue was that as it doesn't have OS I have to handle all stuffs like graphical issues by myself. The picture below illustrate the final product:

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FEATURES

1) Every app notification support

- You can choose witch app can notify you unlimited with "NOTIDUINO" app . Only a few manual optimizing is needed.

- User will be notify with vibration and the app logo (Instagram, twitter or …)

FEATURES

2) Time and temperature (accurate)

- The RTC that is used in this watch is from "Dallas" company and has an internal crystal don't let the time to stay behind .

- The temperature sensor is from "Dallas" company and the accuracy of 0.5 degree .

FEATURES

3) Set time manually

- You can set the time manually.

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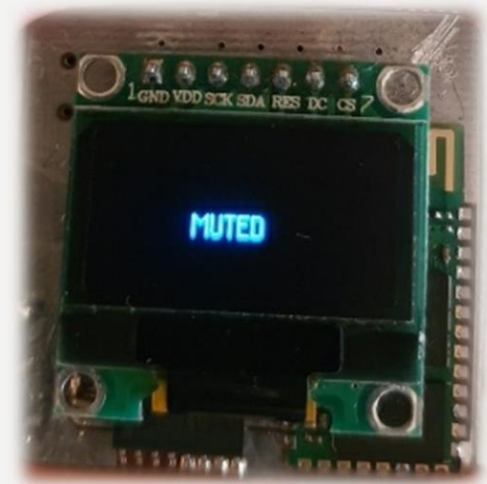
FEATURES

4) Three alarm

- You can set three alarm. It notify you by vibrating. Then you can mute or disable the alarm.

- You can also decide to have daily on once a week alarm

FEATURES

5) mute/unmute :

• As mentioned above you can disable vibration (mute) or unmute it

FEATURES

6) High speed :

- There is no lag and delay in the watch functionality.

FUTURE FEATURES

1) Show message text and phone number :

- It can shows both the phone number and text of the message . But it needs an extra app and it's a bit slow.

2) Gyro sensor :

- Gyro sensor can be use to turn on display by rolling your hand to check the time.

3) direct USB programming (with FTDI chip) :

- By considering an FTDI chip in the design users can program the watch themselves and programmers can customize their watch.