Wi-fi synchronized Arduino alarm

Sistemas Distribuidos y Empotrados
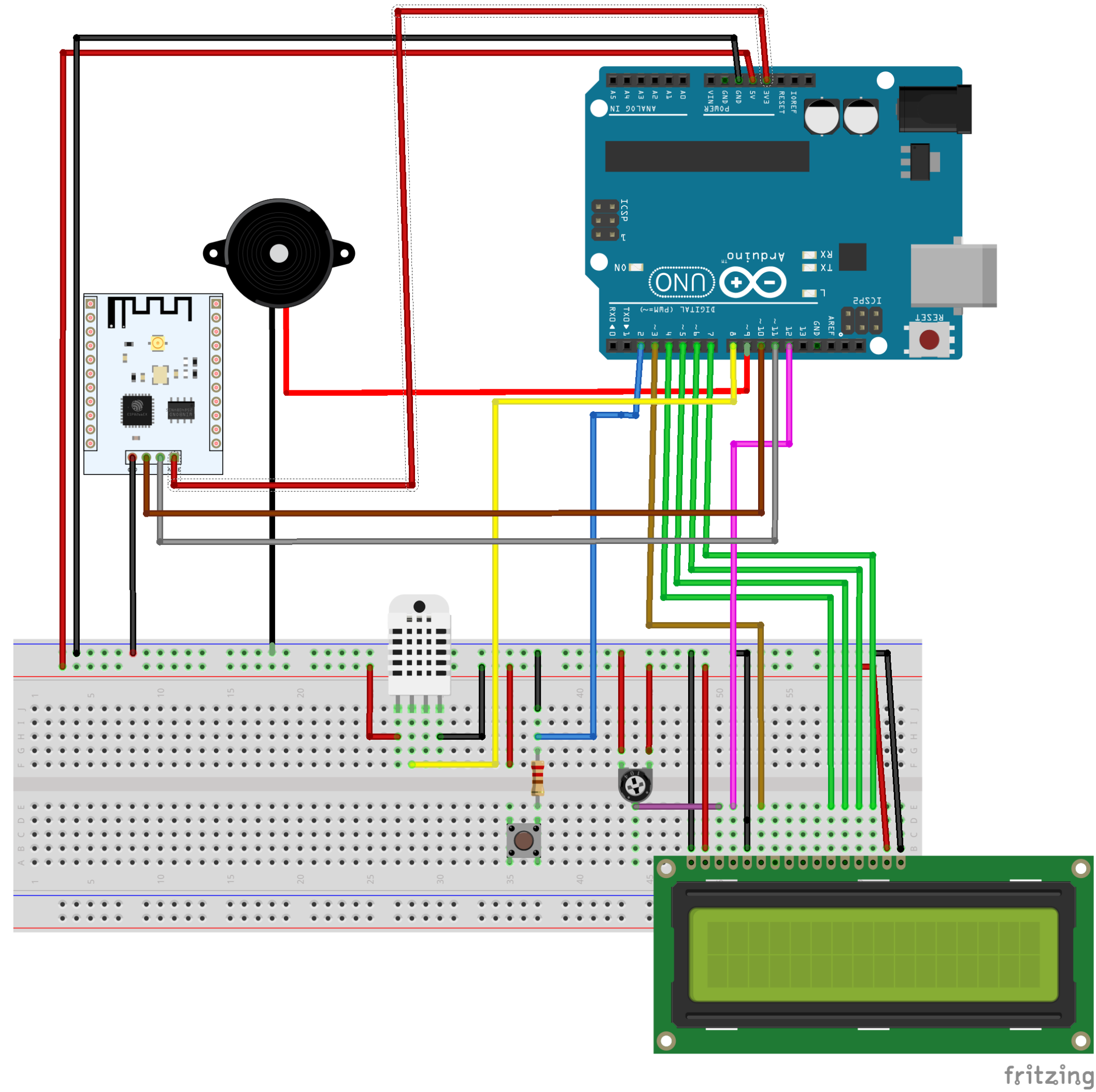
Tommaso Sacchetti - 17/11/2021

Components

- Arduino UNO

- 16x2 LCD

- Potentiometer

- Esp8266 Wi-fi module

- Buzzer

- Button

- DHT11 humidity and temperature sensor

Schema

Implementation

alarm.ino

- Connects the Arduino to the wi-fi and waits for connections

- When a new command is sent through TCP it parses and executes

- Cycles incrementing the time every cycle with a delay of one second

- If the time is equal to the time of the alarm it buzzes the selected theme

- If the button is pressed it stops buzzing

- Temperature and humidity are always monitored and displayed in the LCD screen

AlarmClient.java

- Is the client used to communicate with the Arduino

- It uses the class ClientTCP.java as the backbone to send and receive messaged

- Creates a thread, implemented in Synchro.java that sends the correct time every sixty seconds to the Arduino

- It performs input checking with the data sent by the user in order to send to the Arduino only good formatted commands.

Implemented commands

- SET_TIME modifies the displayed time in the Arduino

- SET_SONG let's the user select with ringtone to use as alarm

- SET_ALARM=disable disables the alarm

- SET_ALARM=hh:mm:ss sets an alarm for the selected time

```
*** WELCOME TO THE ARDUINO ALARM CLOCK CLIENT ***
* Send a command to the Arduino...

[   SET_TIME=hh:mm:ss
[    SET_SONG=[0/1]
[                0|->A-Ah, Take On me
[                1|-> StarWars Theme
[   SET_ALARM=disable
[ SET_ALARM=hh:mm:ss
'terminate' for termination.
**************************************************
```

Final result