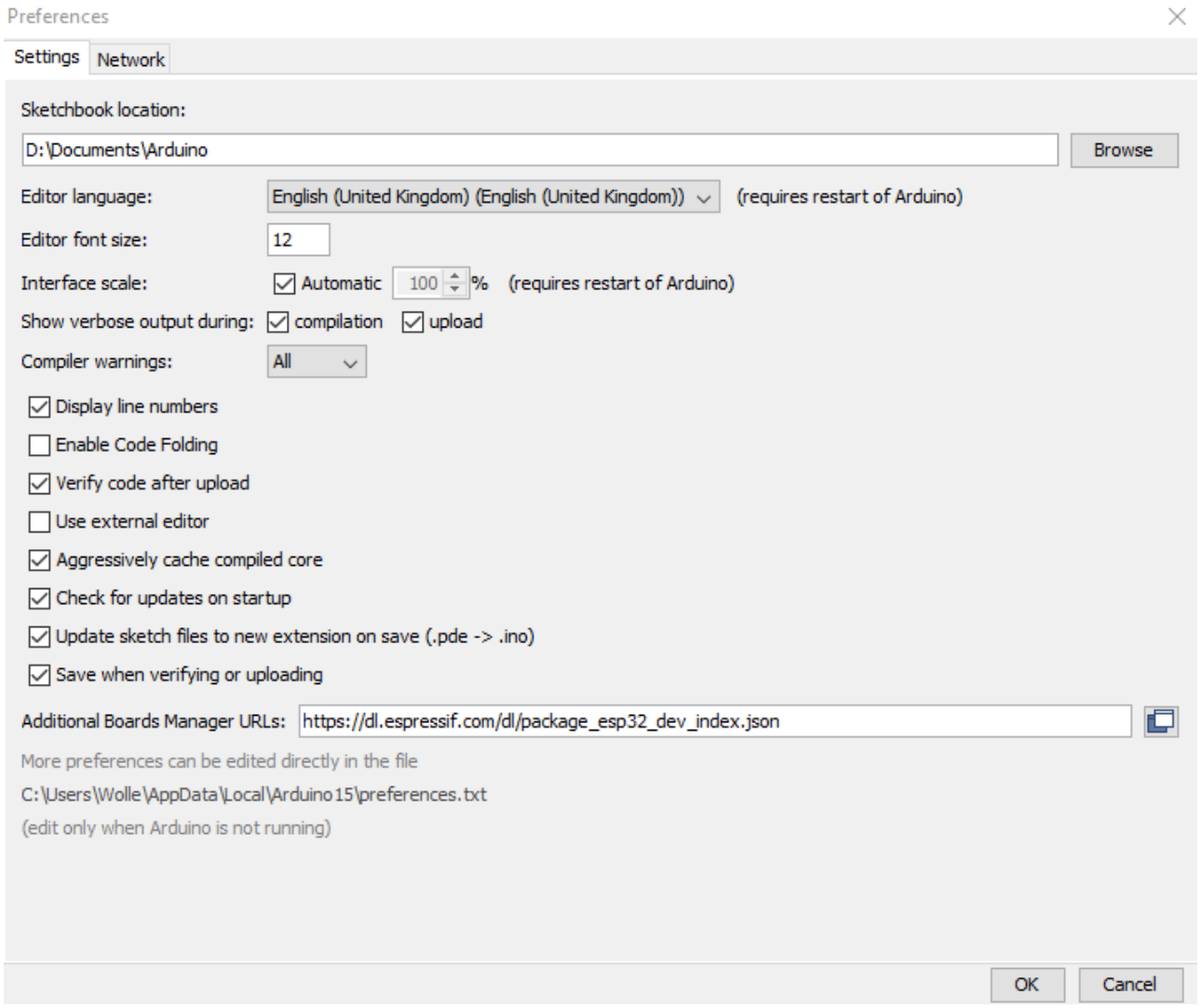
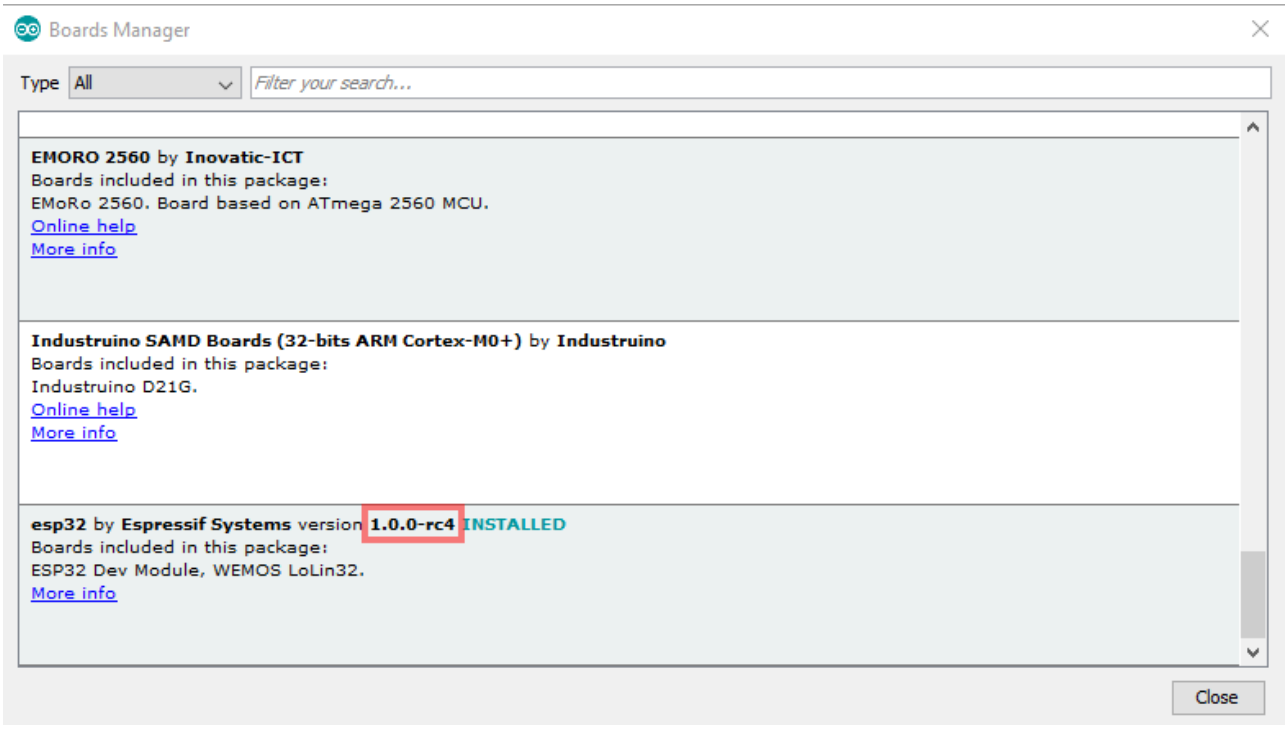
Notes on programming with the Arduino IDE

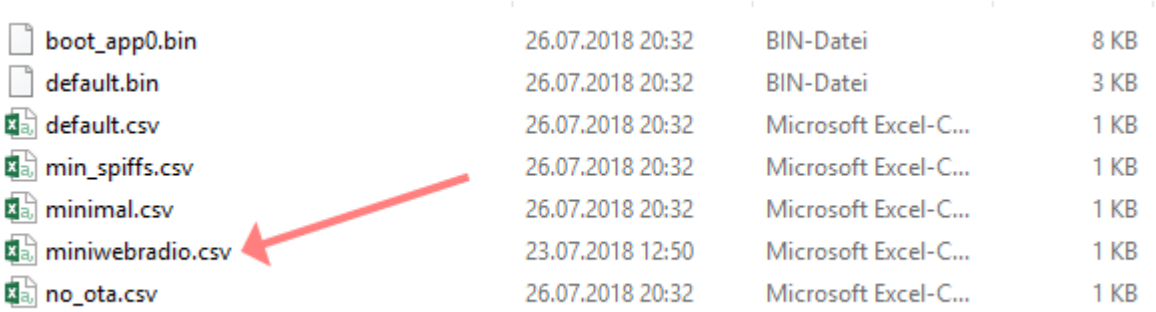
In Preferences:
Additional Boards Manager URLs: https://dl.espressif.com/dl/package_esp32_dev_index.json



Install V1.0.0-rc4, not V1.0.1.... (WiFi is not reliable)



In (user) AppData\Local\Arduino15\packages\esp32\hardware\esp32\1.0.0-rc4\tools\partitions copy the partition table miniwebradio.csv

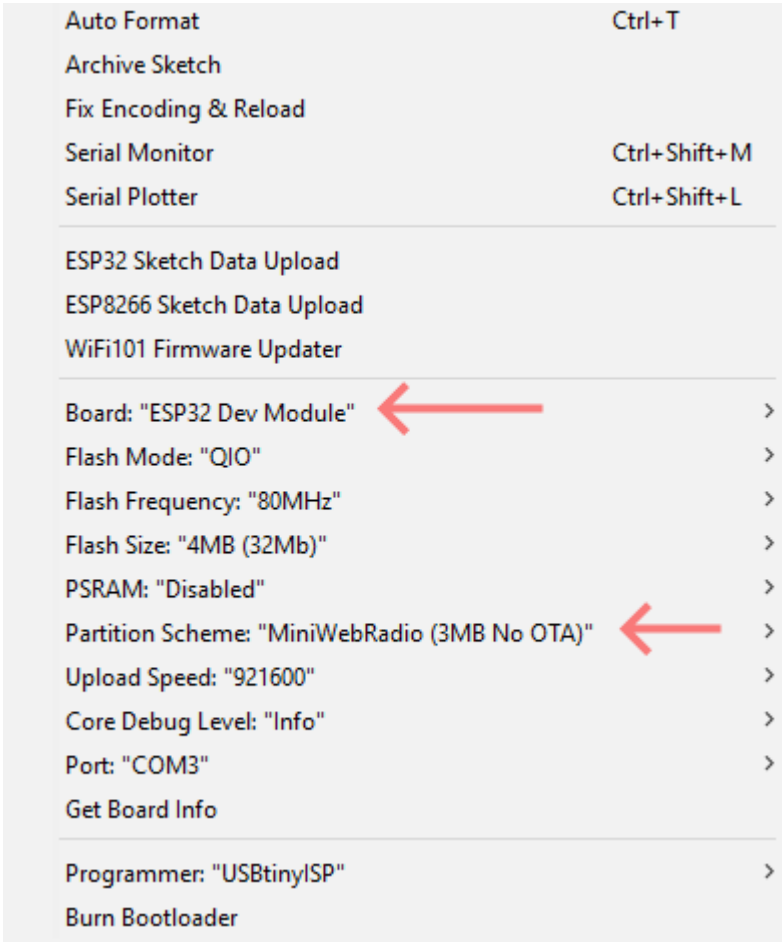


Then add in boards.txt (section ESP32 Dev Module):

esp32.menu.PartitionScheme.miniwebradio=MiniWebRadio (3MB No OTA)
esp32.menu.PartitionScheme.miniwebradio.build.partitions=miniwebradio
esp32.menu.PartitionScheme.miniwebradio.upload.maximum_size=3145728

```
esp32.menu.PartitionScheme.default=Default
esp32.menu.PartitionScheme.default.build.partitions=default
esp32.menu.PartitionScheme.minimal=Minimal (2MB FLASH)
esp32.menu.PartitionScheme.minimal.build.partitions=minimal
esp32.menu.PartitionScheme.no_ota=No OTA (Large APP)
esp32.menu.PartitionScheme.no_ota.build.partitions=no_ota
esp32.menu.PartitionScheme.no_ota.upload.maximum_size=2097152
esp32.menu.PartitionScheme.min_spiffs=Minimal SPIFFS (Large APPS with OTA)
esp32.menu.PartitionScheme.min_spiffs.build.partitions=min_spiffs
esp32.menu.PartitionScheme.min_spiffs.upload.maximum_size=1966080
esp32.menu.PartitionScheme.miniwebradio=MiniWebRadio (3MB No OTA)
esp32.menu.PartitionScheme.miniwebradio.build.partitions=miniwebradio
esp32.menu.PartitionScheme.miniwebradio.upload.maximum_size=3145728
```

Select Board and Partition Scheme



Create a new sketch and save it as MiniWebRadio. The IDE creates a new folder named MiniWebRadio.

The easiest way to do this is to add all the libraries you need in this folder. The required files Can be found in my repositories.

Https://github.com/schreibfaul1/ESP32-vs1053_ext

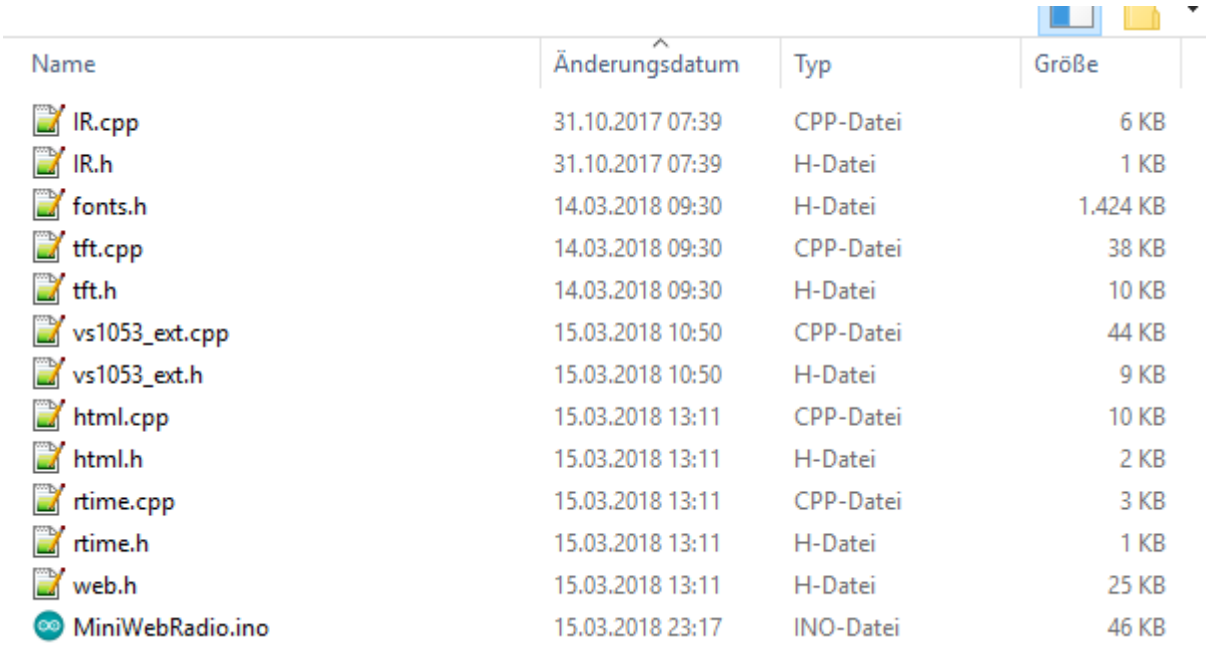
Https://github.com/schreibfaul1/ESP32-IR-Remote-Control Optional, for a IR Remote Control)

In addition, the driver for an SPI display with Touchpad is required. For the Waveshare 2.8 inch display, the:

https://github.com/schreibfaul1/ESP32-TFT-Library-ILI9431-HX8347D

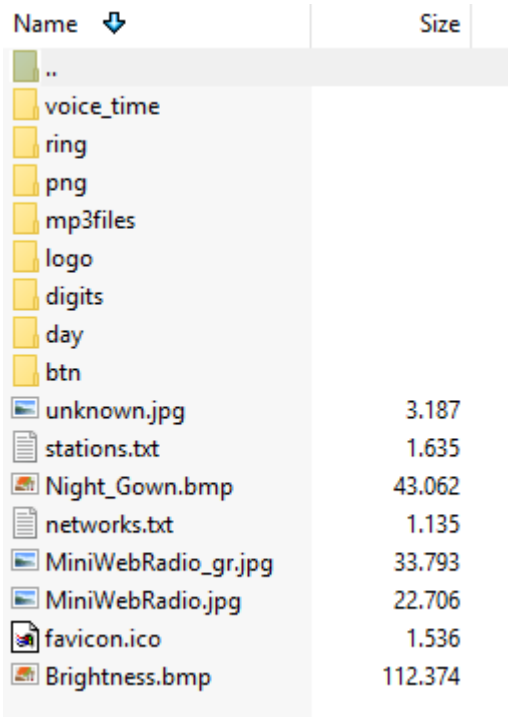
For other displays an adjustment is necessary. The TFT libraries from Adafruit are well suited.

If everything is included, the contents of the folder will look like this:



Name	Änderungsdatum	Typ	Größe
IR.cpp	31.10.2017 07:39	CPP-Datei	6 KB
IR.h	31.10.2017 07:39	H-Datei	1 KB
fonts.h	14.03.2018 09:30	H-Datei	1.424 KB
tft.cpp	14.03.2018 09:30	CPP-Datei	38 KB
tft.h	14.03.2018 09:30	H-Datei	10 KB
vs1053_ext.cpp	15.03.2018 10:50	CPP-Datei	44 KB
vs1053_ext.h	15.03.2018 10:50	H-Datei	9 KB
html.cpp	15.03.2018 13:11	CPP-Datei	10 KB
html.h	15.03.2018 13:11	H-Datei	2 KB
rtime.cpp	15.03.2018 13:11	CPP-Datei	3 KB
rtime.h	15.03.2018 13:11	H-Datei	1 KB
web.h	15.03.2018 13:11	H-Datei	25 KB
MiniWebRadio.ino	15.03.2018 23:17	INO-Datei	46 KB

The contents of the archive „Content_on_SD_Card. zip " Https://github.com/schreibfaul1/ESP32-MiniWebRadio/blob/master/Content_on_SD_Card.zip will be unzipped to the SD card.

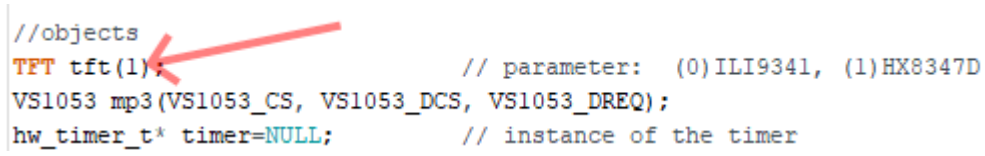


Name	Size
..	
voice_time	
ring	
png	
mp3files	
logo	
digits	
day	
btn	
unknown.jpg	3.187
stations.txt	1.635
Night_Gown.bmp	43.062
networks.txt	1.135
MiniWebRadio_gr.jpg	33.793
MiniWebRadio.jpg	22.706
favicon.ico	1.536
Brightness.bmp	112.374

voice_time	Language files for the time (can be played at any hour)
ring	MP3 file for the alarm tone
pictures	Bitmaps to test the display (not strictly required)
mp3files	Music files etc. for the MP3 player
logo	Sender logos as bitmap (96x96 pixels in size)
digits	Alarm clock and time bitmaps
day	Bitmaps for the day (alarm on/off)

btn	Bitmaps for the buttons
stations.txt	The channel list
networks.txt	If more than one WiFi network exists, the access data can be entered here
favicon.ico	is displayed by the browser on the Web portal. The default URL is: http://miniwebradio/index.html
miniwebradio.jpg	The Home screen
Brightness.bmp	Display Brightness menu graphic

Choose the tft controller



```
//objects
TFT tft(1);                     // parameter:  (0)ILI9341, (1)HX8347D
VS1053 mp3(VS1053_CS, VS1053_DCS, VS1053_DREQ);
hw_timer_t* timer=NULL;         // instance of the timer
```

And the timezone

```
// Timezone
#define TZName  "CET-1CEST,M3.5.0,M10.5.0/3"
```

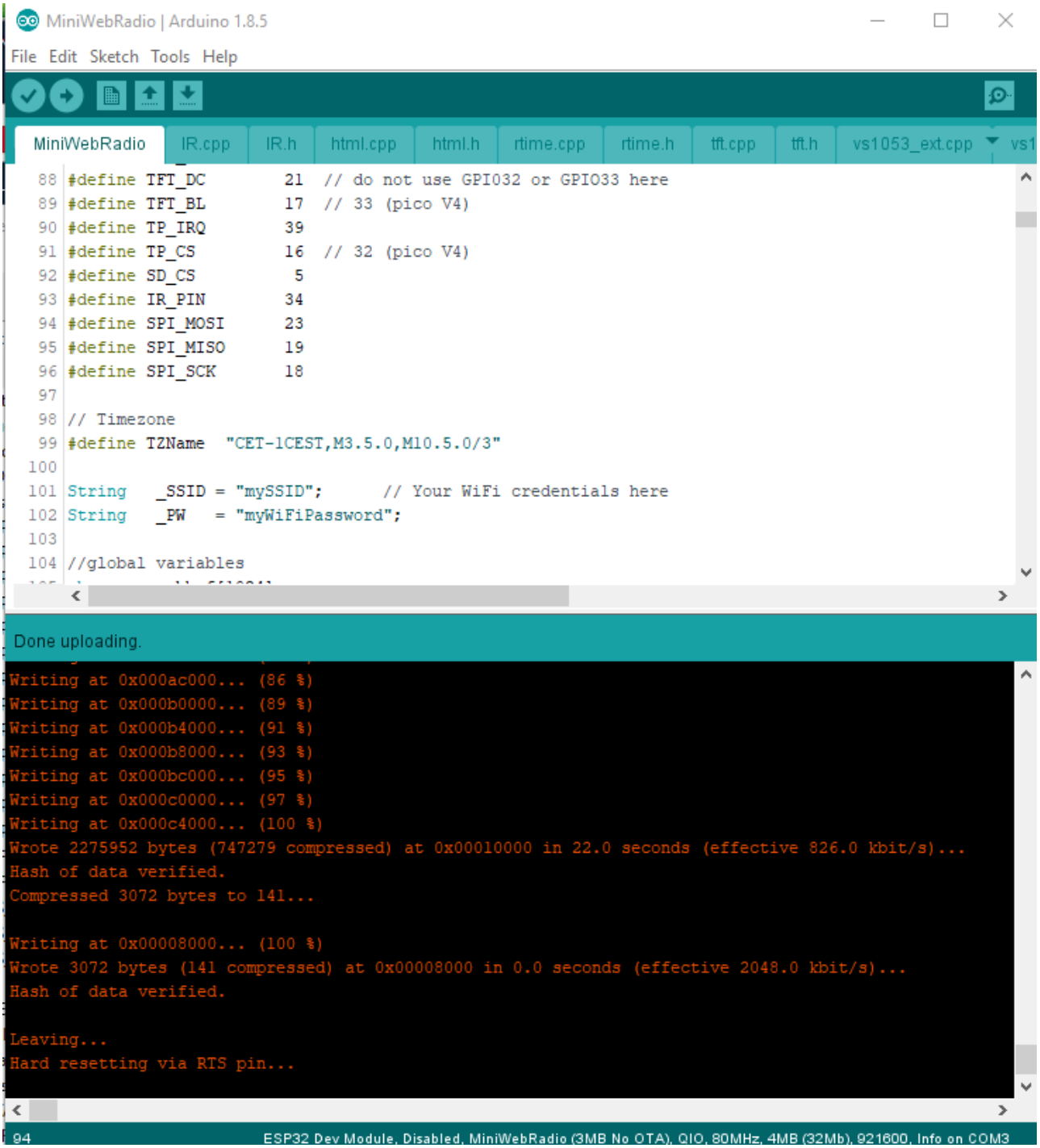
Goto tft.h and include (uncomment) the font Times_New_Roman

```
// this font needs a bigger partition change from "default" to "NO OTA (large app)"
#include "fonts/Times_New_Roman.h"        // latin, greek, cyrillic with all extensions
```

Set Your credentials in the code or in networks.txt

```
String   _SSID = "mySSID";      // Your WiFi credentials here
String   _PW   = "myWiFiPassword";
```

After that, the sketch can be compiled and uploaded.



Sincerely,

Wolle