**MAIN.C**

While loop

{

/\*it is to collect the gps signal and separate that data into different data like

Date, speed, time, latitude, longitude etc…… \*/

**GpsProcess();** line:170(main.c)

/\* this if condition is for checking weather selected AUTO MATIC root if selected then it will enter into this if condition \*/

From line number 172 to 261 // I have to check this

/\*it is for ADC3 initialization for battery indication \*/

**ADC\_Conf();** line:271(main.c)

**Warning 1: FOR AUDIO**

/\* this is for AUDIO files reading based on signal there are three types of warnings are there so we look for why this three types of warnings ? \*/

/\* warning 1 is from 273 and inside if there is switch cases this switch is discussed in page number:

End of if is 273 to 321 line in main.c\*/

**Warning 2:FOR AUDIO**

/\* warning 2 is from 325 line number and it is same as warning 1 it is discussed in page number:

End of if is 325 to 373 line in main.c\*/

**Warning 0:FOR ADC CONFIGURATIONS**

/\*there is a if condition at line num:379 it is checking the if it auto\_route\_selection or not according to that it will give the warring 0 in this it is checking the condition weather it is ADC\_Timer not equal to 0 then it will check about the battery ADC\_Conf();

And also it will check the ADC\_Timer1 if it is not 0 then it will check another condition if it is in simulation mode or not then it will configure the ADC\_CONF1 it is for the ANTEENA indication weather antenna is opened or closed

This is from the line number 379 to 397 \*/

/\* this if condition is for the checking the buttons values this buttons area called as keys there are 5 keys

1.MENU 2.UP 3.DOWN 4.ENTER 5.VOLUME

**Keyprocess(); this this function responsibility for key buttons where to go** line:403(main.c)

We will discuses more about this in page number :\_\_\_\_\_\_\_

This if will satisfied the condition when it is not the MENU 1 KEY, full details about this if condition at page number given in detail \*/

/\* This usb function is for dumping the audio and DB roots in to there memories\*/

**USB();** line:409(main.c)

/\*this if condition is for checking the Antennastat if it is 1 then it is making the antenna as zero

Else

It is going to MENU() This is function which is responsible for displaying what we are seeing after press enter, any thing where are you are going inside this function is responsible to show the display ok we will discusses more about this in page number : \_\_\_\_\_\_ ok \*/

**GPS\_PROCESS();** main.c(170)

{

/\* inside this function there is a if condition to check weather gps got packet or it is in test mode it will check if any one is there like gps has given packet or it is test mode it will enter inside the if condition other wise it

It will not do any task in gps\_Process function

I think you have understand about this function this will do any task when there is a gps signal and it have to send the packet or else it is in test mode is on then it will do any thing other wise it is simply come out of function by check the condition ok\*/

if(gotGPS\_Packet || test\_mode == 1) //gps has given packet then condition will satisfied ok

{

* **AnalyseGPSData(); //this function is about to analyse the gps signal like** the **time**, **latitude**, **longitude**, **speed**, and **date**, and checks if the data is valid.

**{**

* **NMEA GPRMC** sentence this type of packet it will give

$GPRMC,123519,A,4807.038,N,01131.000,E,022.4,084.4,230394,003.1,W\*6A

| **Field #** | **Example** | **Meaning** |
| --- | --- | --- |
| 1 | 123519 | UTC time (12:35:19) |
| 2 | A | Validity (A = valid, V = invalid) |
| 3 | 4807.038,N | Latitude 48°07.038' North |
| 5 | 01131.000,E | Longitude 11°31.000' East |
| 7 | 022.4 | Speed in knots |
| 9 | 230394 | Date (23 March 1994) |

**Gps\_Com.c (57-181)**

**if(gotGPS\_Packet) //inside the analysegpsdata it is again checking is the packet had reached or not**

**{**

// it is checking weather the packet is GPRMC packet then it will proceed forward else it will go out of this function with out doing any thing, making that **$GPRMC** converted to **“00000”** for normally it is converting to “00000”

* After that it will check for first comma(,) where in that packet it will receive the address of that comma in the string
* It will extract the time from the gpsdata the time it is sanded as UTC time
* So converting UTC time INDIAN standard time (IST)
* IT is checking the given time is correct or not my checking the hours are less then 24 or nto if it is invalid then it is also that function stopes
* If time is correct then it will collect time to another variables
* It will collect the lat in the buffer
* It will check for second comma(,) in the data then it will return the pointer after that comma
* Then that point location data is stored in the variable (this is will check weather the data is valid or not )
* It will check for 3 comma(,) in the data
* Then it will collect the latitude
* It will check weather the given latitude or in India or not if it is in india it will store the lat in another varable like structure
* Again it will check for 5th comma(,) in the data packet after that it will
* Collect the longitude
* It will check if the longitude or in india or not
* If with in india it will store
* It will check for 7th comma(,) in the data packet(here it is collecting the speed in knots)
* It is converting to KMPH and storing in variable
* if(route.jmode == 2) // Smoothing only applies in mode 2
* if(gps.speed > 1) // Ignore speeds too low (probably noise)
* {
* accSpeed += gps.speed; // Add to total
* accSpeedCnt++; // Count this sample
* }
* if(accSpeedCnt == 5 && gps.speed < 10)
* {
* gpsspeedkmph = accSpeed / 5; // Compute average of 5 readings
* if(gpsspeedkmph <= 5) // Still too slow?
* gpsspeedkmph = 0; // Treat it as "not moving"
* accSpeedCnt = 0; // Reset for next batch
* accSpeed = 0;
* }
* It will check for 9th comma and then it will extract data from the data
* It will collect the date into another variable
* It will do something on date and collecting the date
* It will checking the weather it is valid signal or not at lost like gps packet or not at last again
* Else it will reset the variables related to it

/\*here it is the end of the this function\*/

**}**

* **TeGetStnNo = GetStnNo; //I have a doubt about this**
* if gps data is coming and we are not select the route any thing then the values are like GetStnNo = 0; and RouteComplete=1; and AutoRouteSelection=0
* then the **if** is not true it will fail **gps\_tracker(); will not execute**
* **if we enter into manual routes then** RouteComplete=1; becomes RouteComplete=0; then **gps\_tracker(); will execute**
* **gps\_tracker();**//this function is about to where the train is and how far it is about to next three locations and is train going in correct route or not it is checking

**{**

* **it is very important in gps\_tracker it is having the three land marks locations from where they are getting this land marks before only means we will select the route from there one function is there it is in key\_process.c(2626) GetStationInfo(DisplayTrainRoute); //for this function we are sending the train number based on the train number it is giving the s**
* **when we selected the route then** GetStnNo = 0; will become “1”
* where it is setting means in **keyprocess.c(2627)** because we selected the route so it is set ok. **void Route\_Sel(void);**