

Scope of the Project “RFID Chrono Timing System” – Guide Lines

Using the source files from the file UHFDemo_v3.65_EN_source.rar develop a new working software, that is suitable for use in a racing event, the system must be able to count the lap times for each individual pilot (4 pilots), record the best lap and average lap, using RFID technology.

Additional to this the software will have a RFID setup menu and option(similar or equal that is used in the delivered UHFDemo_v3.65_EN_source.rar) and an export option to save all the data in one SQLite DB.

In annex to this file will be delivered all the information regards the equipment, protocols, source files, specifications.

In the end of the project the developer must deliver a fully working software that meet this scope specification and source files of the code in C#.

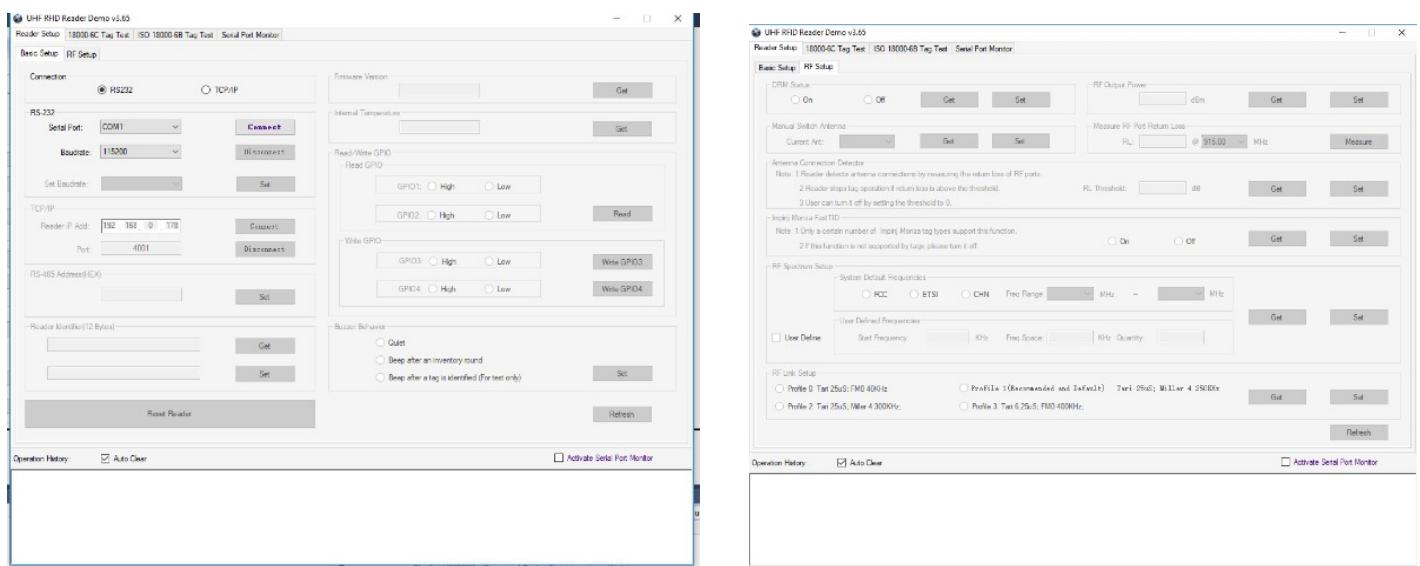
The developer estimate:

2 hours for UI work, 1 hours for Race Implementation, 2 hours for DB creation and mapping, 1 hour for log and export and 1 hour to testing, bug fixing and improvements, that sum 7 hours, I will assume that this project will take up to 10 hours to finish.

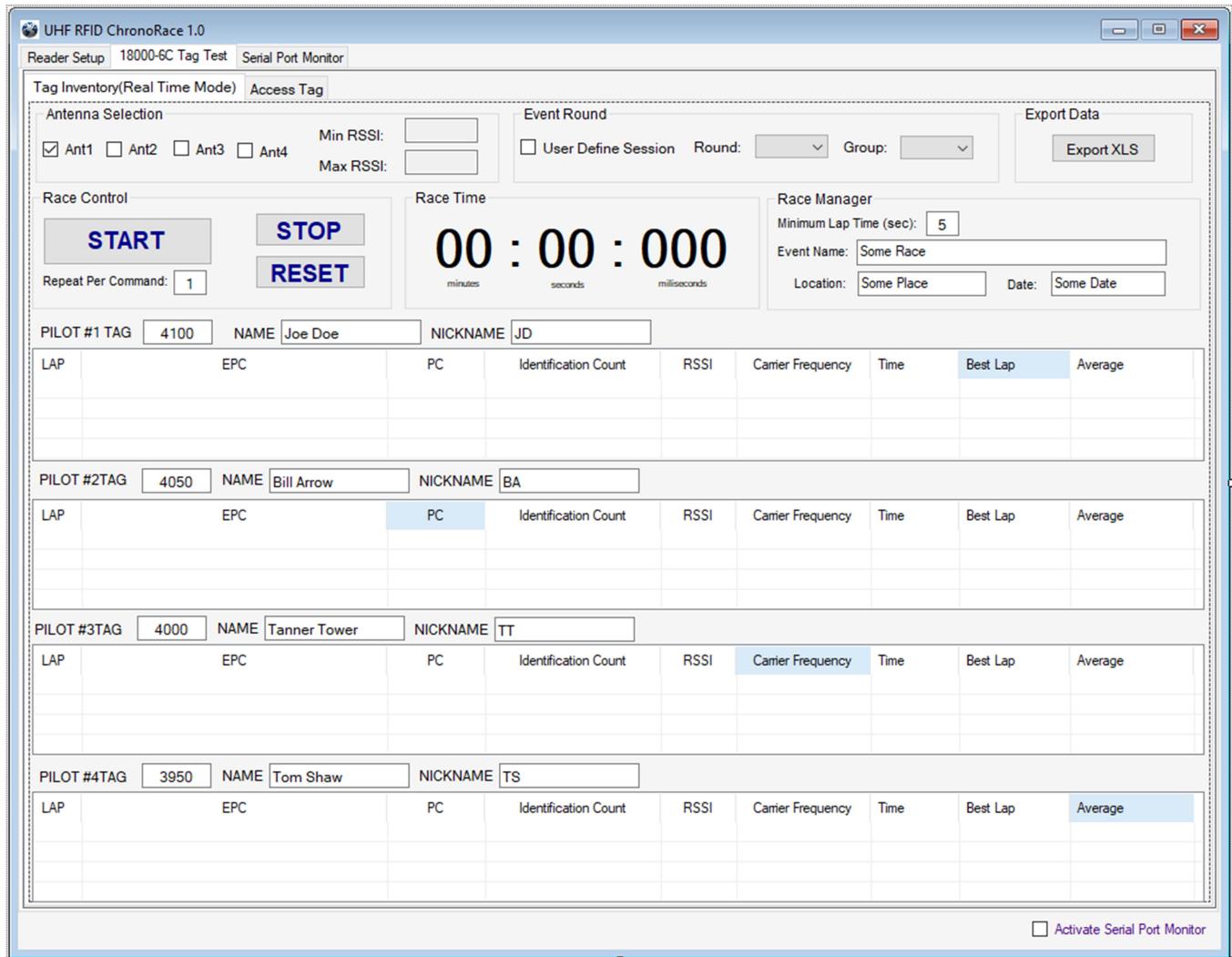
The deadline for delivering the project is 2 weeks, in the end of first week the goal is to have a prototype to start testing and during the second week bug fixing and improvement.

Reference images and notes

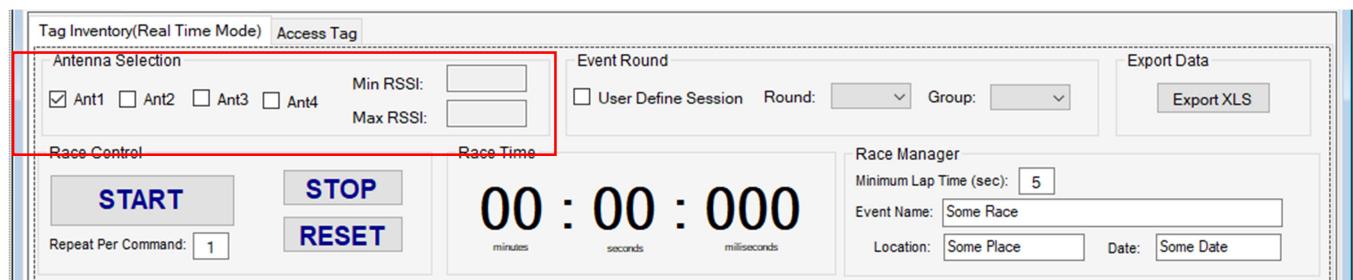
GUI – For setup the reader options (from the source file)



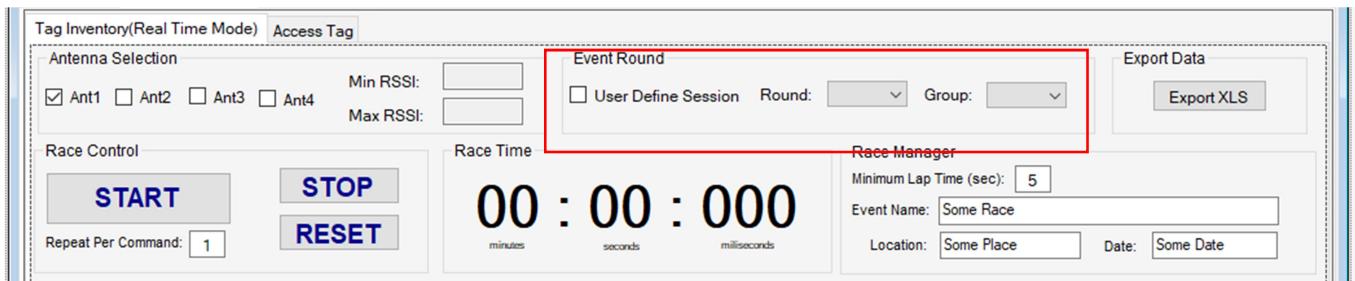
Reuse the tabs that are used for setting up the reader, serial connect can deleted, we only going to use TCP/IP



Possible GUI aspect, only for guide line can be changed or optimized by the developer.



Set working antena, and show max. and min. RSSI using the source code



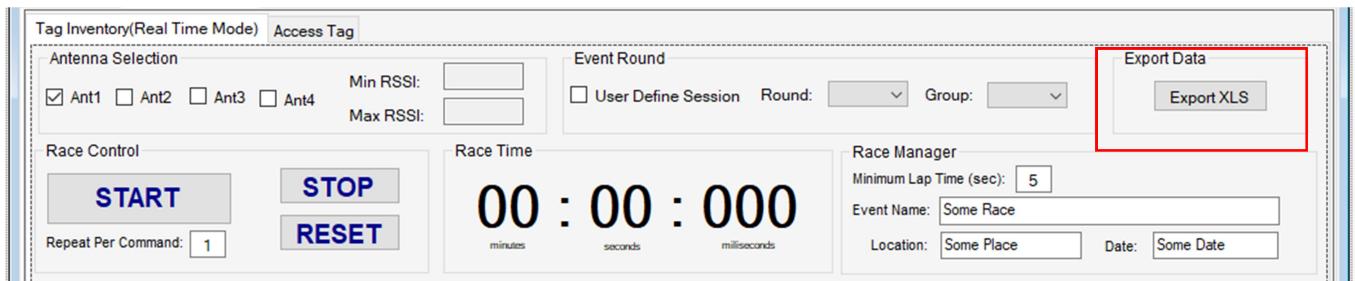
Option to give a title to the export file, on dropbox of “Round” it will have:

Q1 | Q2 | Q3 | Q4 | Q5 | Q5 | R1 | R2 | R3 | SF | BF

On the dropdown of “Group” it will have:

G1 | G2 | G3 | G4 | G5 | G6 | G7 | G8 | G9 | G10

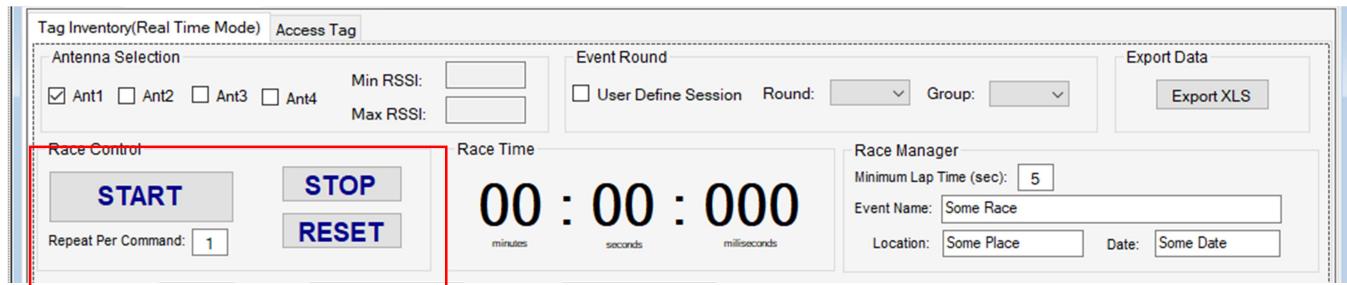
This round events must be add to the DB do differentiate each race stage



~~Export all the data, the file name will have the options selected on the Event Round, example Q1G1.xls~~

~~See the end of this document it will be an example of the format of the XLS file~~

Best to use a SQLite to do this! All the information regarding event round, pilot information and times goes to the DB.



The START button will trigger the timing system, it will check if the RESET is made if not return a error box “ NEED TO RESET FIRST”

The STOP button will stop the timing system.

The RESET button will reset all the value in the table from for the 4 pilots to 0 to start a new event round.

The screenshot shows the 'Tag Inventory(Real Time Mode)' tab selected. In the 'Race Control' section, there are three buttons: 'START', 'STOP', and 'RESET'. Below these buttons is a dropdown menu 'Repeat Per Command' set to '1'. To the right of the control buttons is a large digital timer labeled 'Race Time' with the format '00 : 00 : 000'. The timer is divided into 'minutes', 'seconds', and 'milliseconds' sections. The entire 'Race Time' section is highlighted with a red border. On the far right of the interface, there is a 'Race Manager' section containing fields for 'Minimum Lap Time (sec)' (set to '5'), 'Event Name' ('Some Race'), 'Location' ('Some Place'), and 'Date' ('Some Date'). There is also an 'Export Data' and 'Export XLS' button.

Timer using Seconds : Minutes : Milliseconds.

The timer start when START will activated, reset put the timer at 0.

This screenshot is identical to the one above, showing the 'Tag Inventory(Real Time Mode)' tab. The 'Race Time' display is again highlighted with a red border. The 'Race Manager' section on the right is also highlighted with a red border, specifically around the 'Minimum Lap Time (sec)' field which is set to '5'. The other fields in the 'Race Manager' section ('Event Name', 'Location', 'Date') are also enclosed in the red border.

Minimum Lap Time in Seconds, this will be the most important thing to implement, it will be a general rule for the timing system to validate a LAP.

In were we are going to tell the system to ignore TAGs that passed < (time in seconds defined in the box) and if the TAG pass > (time in seconds defined in the box) the system will validate a new lap.

This is used because in a pass of the TAG on RFID READER the READER will read the tag several times. Or in a event of a crash near the RFID reader, the reader will continue to detect the tag

And by using method we can use the time mark when the system read the first EPC code of the TAG and define as LAP time.

This screenshot is identical to the previous ones, showing the 'Tag Inventory(Real Time Mode)' tab. The 'Race Time' display is highlighted with a red border. The 'Race Manager' section on the right is also highlighted with a red border, specifically around the 'Minimum Lap Time (sec)' field which is set to '5'. The other fields in the 'Race Manager' section ('Event Name', 'Location', 'Date') are also enclosed in the red border.

Event Name, text field

Location , text field

Date, text field

To be add to the header of the DB

PILOT #1 TAG	4100	NAME	Joe Doe	NICKNAME	JD	LAP	EPC	PC	Identification Count	RSSI	Carrier Frequency	Time	Best Lap	Average

Pilot TAG ID, in this field we are going to manually input the tag ID for each pilot, in here we are going to type the EPC tag id for example 00 00 00 00 00 00 00 00 00 00 41 00, this value will be used to filter the tag lap times, we can use this field to tell the software to input all the pass times of this tag id in this form.

PILOT #1 TAG	4100	NAME	Joe Doe	NICKNAME	JD	LAP	EPC	PC	Identification Count	RSSI	Carrier Frequency	Time	Best Lap	Average

Name and nickname to be added to the TAG ID, export file to database

PILOT #1 TAG	4100	NAME	Joe Doe	NICKNAME	JD	LAP	EPC	PC	Identification Count	RSSI	Carrier Frequency	Time	Best Lap	Average
						0	00 00 00 00 00 00 00 00 00 00 41 00	30 34	9	-63 dBm	866,700	00:00:000		

LAP 0, this is the first time that the TAG pass on the READ it will set the time to 00:00:000 all the LAPS will be timing after the first pass

PILOT #1 TAG	4100	NAME	Joe Doe	NICKNAME	JD	LAP	EPC	PC	Identification Count	RSSI	Carrier Frequency	Time	Best Lap	Average
						0	00 00 00 00 00 00 00 00 00 00 41 00	30 34	9	-63 dBm	866,700	00:00:000		
						1	00 00 00 00 00 00 00 00 00 00 41 00	30 34	13	-51 dBm	866,700	00:18:042		

The LAP 1 will be added when the TAG pass on the READER the second time, it will add the time used to complete one LAP, in this case 00:18:042

PILOT #1 TAG	4100	NAME	Joe Doe	NICKNAME	JD	LAP	EPC	PC	Identification Count	RSSI	Carrier Frequency	Time	Best Lap	Average
						0	00 00 00 00 00 00 00 00 00 00 41 00	30 34	9	-63 dBm	866,700	00:00:000		
						1	00 00 00 00 00 00 00 00 00 00 41 00	30 34	13	-51 dBm	866,700	00:18:042		
						2	00 00 00 00 00 00 00 00 00 00 41 00	30 34	6	-60 dBm	866,700	00:15:125		

The LAP 2 will be added when the TAG pass on the READER a third time, it will add the time used to complete the LAP, in this case 00:15:125

And the LAP will continue to mark until the STOP button is pressed.

This must be done for the 4 pilots.

PILOT #1 TAG	4100	NAME	Joe Doe	NICKNAME	JD				
LAP	EPC		PC	Identification Count		RSSI	Carrier Frequency	Time	Best Lap
PILOT #2TAG	4050	NAME	Bill Arrow	NICKNAME	BA				
LAP	EPC		PC	Identification Count		RSSI	Carrier Frequency	Time	Best Lap
PILOT #3TAG	4000	NAME	Tanner Tower	NICKNAME	TT				
LAP	EPC		PC	Identification Count		RSSI	Carrier Frequency	Time	Best Lap
PILOT #4TAG	3950	NAME	Tom Shaw	NICKNAME	TS				
LAP	EPC		PC	Identification Count		RSSI	Carrier Frequency	Time	Best Lap
									Average

Each pilot have a unique TAG ID.

The table fields regarding each pilot must only contain the timing from the is TAG ID.

Best Lap and Average will be marked when the STOP button is pressed, the BEST LAP will have a dot on the correspond row for the best lap, or in alternative we can copy the best time and put in the column of best best in bold, the same with the Average time of all the laps, do the average time and put in bold on the column of the Average.

End of document.