REPORT : ASSIGNMENT 8 Real Time Data Analysis

GROUP: 2H

Description of C-Code :

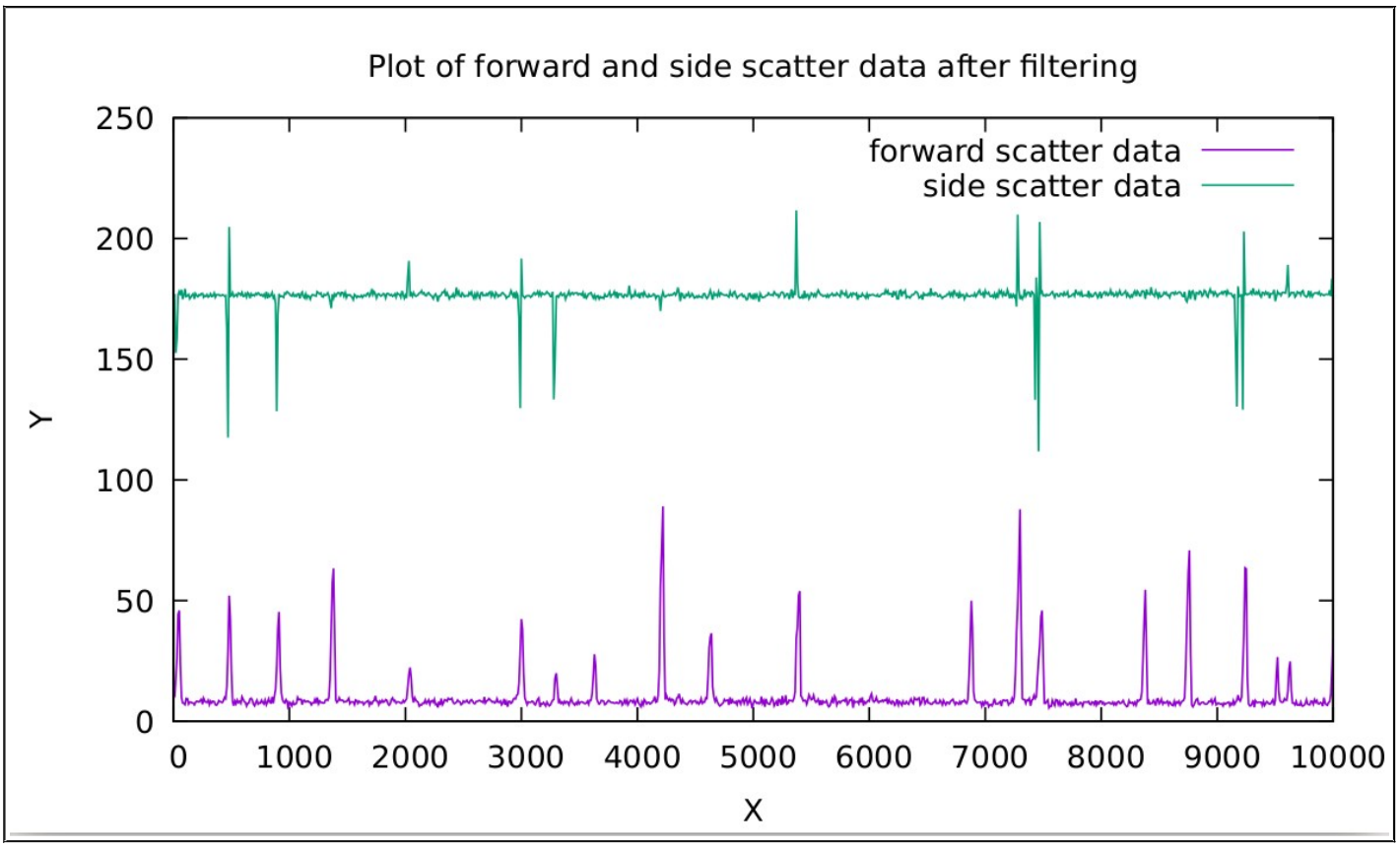
- The C code takes a part of data from the given data
- It filters the data using moving average filter and then stores the base average values.
- The filtered data is used to find full width half maximum,location of peaks and location of cells.
- The output is Plots of filterd data,locations of peaks and FWHM of peaks,Mean of FWHM's for different number of cells,mean and median of arrival times of cells .
- The number of points taken can be changed by changing the value of #define N in the code.
- FLdata1.txt has peaks with FWHM’s.
- Fldata2.txt has mean FWHM’s for various number of points
- plot.pdf has plots of filtered data.

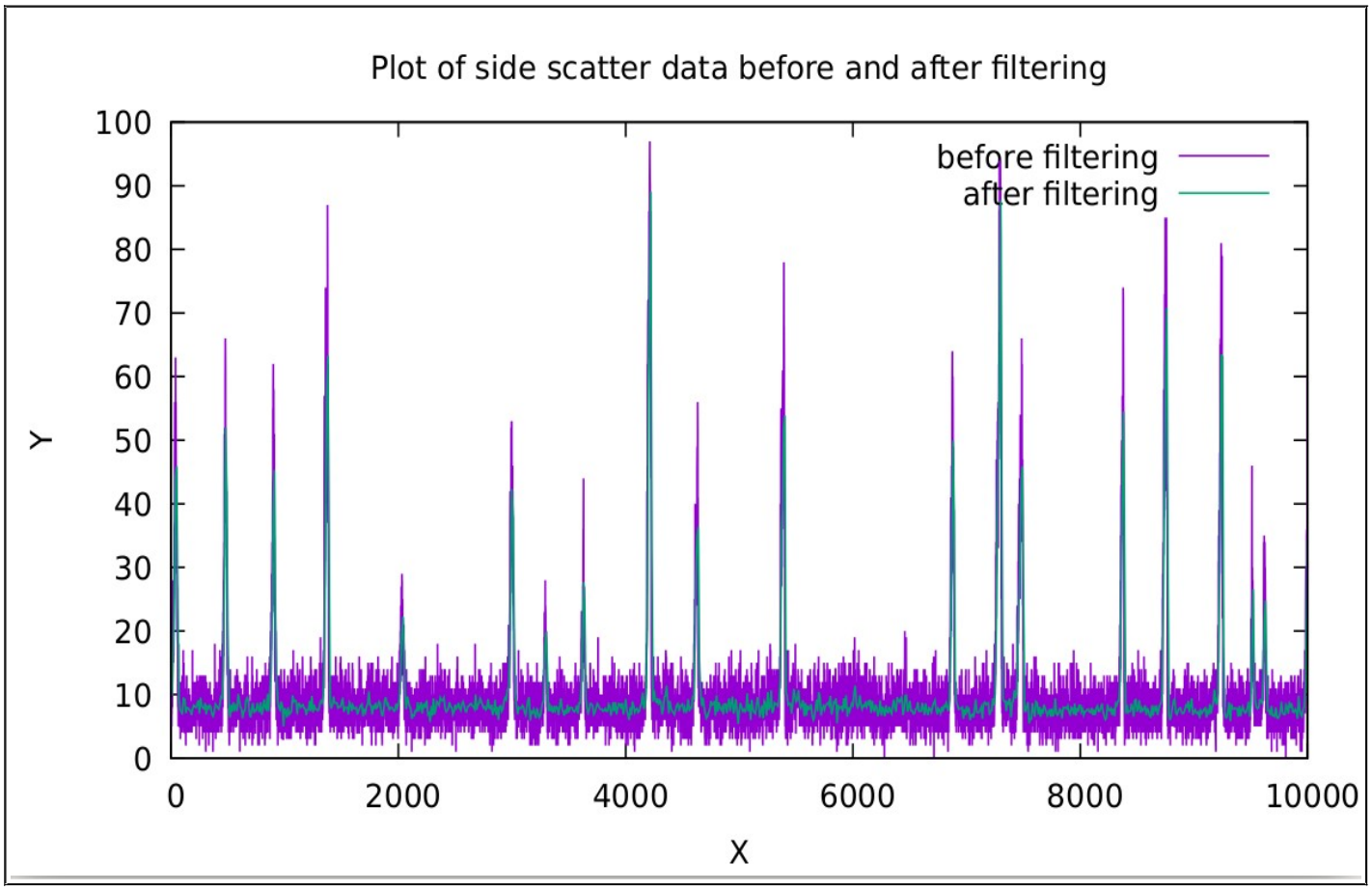
Learning outcomes:

- Use of arrays
- Use of functions in a c code.
- Calling gnuplot from the c code.
- Use of circular buffers.
- Writing data into file.
- Reading one point at a time and processing it.

Inferences:

- The graph of filtered data is easy to analyze when compared to raw data as noise is reduced after filtering.
- Cells are found only if maximum of both coincide.
- Forward scatter data has both maximum and minimum at the location of cell.
- Cell coresspond to the location of true positive.


Plot of forward and side scatter data after filtering
forward scatter data
side scatter data
Y
X
250
200
150
100
50
0
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000


Plot of side scatter data before and after filtering
before filtering
after filtering
Y
X
100
90
80
70
60
50
40
30
20
10
0
0
2000
4000
6000
8000
10000