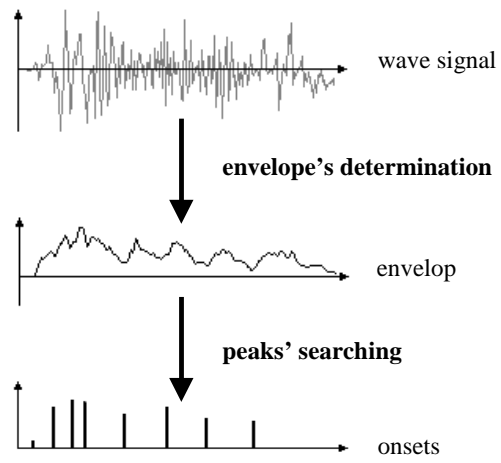
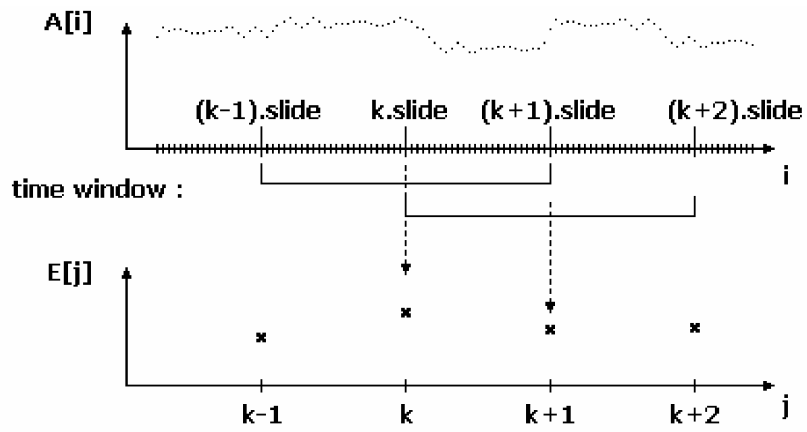
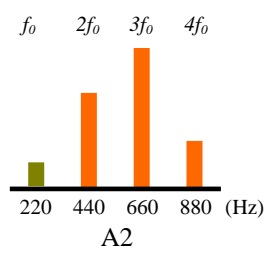


Parameters	Piano	Guitar	Violin
FROM	22	50	55
RANGE	88	47	54
NUM_HARM	3	3	4
WEIGHT_HARM[]	1.0,0.8,0.4	1.0, 0.8,0.4	0.8,1.0,0.6,0.4
BUFFER_SIZE	4000	4000	4000
ONSET_DELAY	3000	3000	3000
OFFSET_THRESH	0.08	0.25	0.15
NUM_HARM_OS	3	3	4



$$\text{Audio signal : } A = \begin{pmatrix} a_0 \\ a_1 \\ \vdots \\ \vdots \\ a_{n-1} \end{pmatrix} \quad \text{Envelope : } E = \begin{pmatrix} e_0 \\ e_1 \\ \vdots \\ \vdots \\ e_{m-1} \end{pmatrix} \quad \text{slide} = \frac{m}{n}$$





Title of the piece	Number of analysed notes	Percentage of recognised notes
Sakura	34	97.4 %
Studio di D. Aguado	42	100.0 %
Der Weichachtsmann	40	85.0 %
The Muffin Man	29	86.2 %
Red River	38	86.9 %
Chromatic Scale	37	91.8 %
Ballata lombarda	39	97.4 %
Canto trad. siciliano	47	91.5 %
Canto trad. cinese	55	100.0 %
Canto trad. tedesco	57	86.0 %
Scala di Do mag.	15	93.3 %
Arpeggio di Do mag.	5	86.9 %
Studio di F. Carulli	100	93.0 %

Title of the piece	Number of analysed notes	Percentage of recognised notes
Inno alla gioia	63	96.8 %
Sinfonia dal N.Mondo	66	97.0 %
Minuetto di J.S.Bach	113	91.2 %
Notturmo di F.Chopin	73	95.9 %
Per Elisa	80	93.8 %
Romanza in Fa	62	100.0 %
Scala in Do mag.	16	100.0 %
Valzer dal L.dei Cigni	62	90.3 %
Il mattino di E.Grieg	25	100.0 %

Title of the piece	Number of analysed notes	Percentage of recognised notes
Chromatic Scale	48	87.5 %
Corale di J.S.Bach (synthetic)	62	99.4 %

Method	Domain	Simplicity	Noise Robustness	Inharmonicity Robustness	Spectral peculiarities Robustness	Octave Errors
ZCR ([3])	Time	Very simple				Yes
AutoCorrelation Function ([4], [20], [30])	Time/Freq.	Simple Relatively	Noise immune		Sensitive	Yes
Envelope Periodicity ([33], [34])	Time	Simple				Yes
Time Parallel Processing/Rabiner ([36])	Time	Relatively simple				Yes
Spectrum AutoCorrelation ([18])	Frequency	Simple				Yes
Harmonic Matching Methods ([19])	Frequency	Quite Complex	Relatively noise immune		Relatively immune	Yes
Wavelet based method ([31])	Frequency (WT)	Quite Complex	Noise immune			
Bandwise/Klapuri ([32])	Frequency	Quite Complex	Relatively immune	Relatively immune	Relatively immune	
Proposed System	Time	Simple	Relatively immune	Relatively immune		Yes