MEL FREQUENCY CEPSTRAL COEFFICIENTS (MFCCs)

The Mel frequency cepstral coefficients (MFCCs) of a signal are a small set of features (usually about 10–20) which concisely describe the overall shape of a spectral envelope. 'librosa.feature.mfcc' computes MFCCs across an audio signal.

In [1]:
```
import librosa as lr
import librosa.display
import matplotlib.pyplot as plt
import sklearn.preprocessing

import matplotlib.style as ms
%matplotlib inline
import numpy as np
import os
```

In [2]:
```
audio='/home/vivek/Genre_Detection/genres/blues/blues.00000.au'
x , sr =lr.load(audio)
```

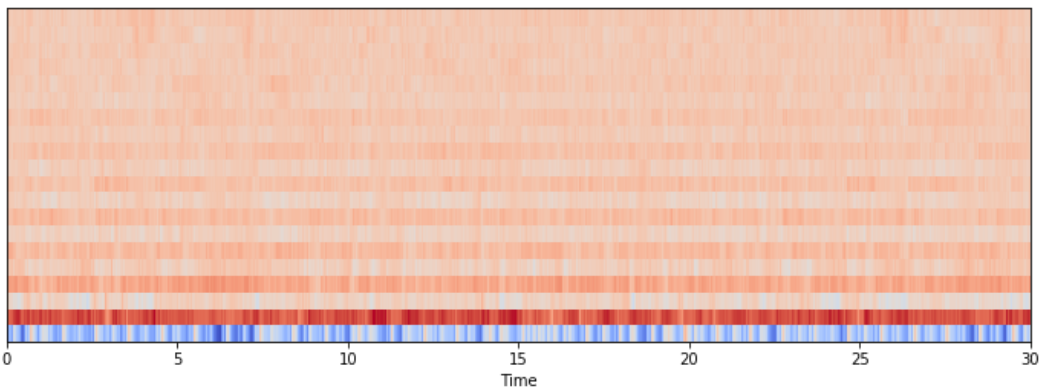
In [3]:
```
mfccs = lr.feature.mfcc(x, sr=sr)
mfccs.shape
```

Out[3]:
```
(20, 1293)
```

The shape of the numpy array returned is (20,1293) i.e. it computed 20 MFCCs over 1293 frames (all the features extracted are computed over 1293 frames for given 30 s audio) MFCCs are basically collection of 20 features which can help in classifying the genre whem model is trained over them

In [4]:
```
#DISPLAYING MFCCs
plt.figure(figsize=(12,4))
librosa.display.specshow(mfccs, sr=sr, x_axis='time')
```

Out[4]:
```
<matplotlib.axes._subplots.AxesSubplot at 0x7f4dc48d08d0>
```



In [5]:
```
for e in mfccs :
    print(np.mean(e))
```

```
-113.57065006014841
121.57179828375645
-19.168141830786563
42.36641931081865
-6.364662969610004
18.62349792464524
-13.704889705913923
15.343149555432882
-12.274108441213608
10.976570552258792
-8.326572193800242
8.80379123156843
-3.672299421905253
5.747994547195376
-5.162881230931702
0.7527385539353071
-1.6902141675534028
-0.4089800418536769
-2.3035220174566478
1.2212897403748308
```

These 20 values are used in the genre determination

In [ ]:
```

```