# Voicing

Count zero crossings

# Formant Frequencies

First Formant typically ranges from 200 to 900.

Second Formant typically ranges from 500 to 3000.

We produced the cardinal vowels (live) three times to take the following measurements with our application.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Frequency (Hz) | **F1 Means** | | | | **F2 Means** | | | |
| **Trial** | 1 | 2 | 3 | Average | 1 | 2 | 3 | Average |
| **i** | 161.6 | 347.3 | 325.4 | 278.1 | 2170 | 1958 | 2207 | 2111.67 |
| **u** | 261.5 | 342.1 | 293.8 | 299.13 | 838.5 | 920.6 | 1108 | 955.7 |
| **a** | 774.2 | 771.4 | 848.8 | 798.13 | 1585 | 1670 | 1675 | 1643.3 |
| **α** | 691.9 | 849.8 | 653.6 | 731.77 | 569.6 | 656.6 | 959.6 | 728.6 |

We also used pre-recorded .wav files for the cardinal vowels.

|  |  |  |
| --- | --- | --- |
| Stabilisation times (s) | **F1** | **F2** |
| **i** | 7 | 4 |
| **u** | 2 | 2 |
| **a** | 3 | 4 |
| **α** | 2 | 3 |
| **Average** | 3.5 | 3.2 |