

Bodhi


Speech Recognition

Benchmarking Report Q2 2024


Executive Summary

This report evaluates the speech recognition offerings from Navana.ai's Bodhi, Google, and Azure using various Hindi, Kannada, Bengali, Marathi and Tamil datasets. Benchmarking results reveal Bodhi's top-of-the-market performance with the lowest average Word Error Rate (WER) of 22.26% and Character Error Rate (CER) of 6.36%, outperforming Google and Azure in accuracy across diverse datasets.


Core advantages of Bodhi



Highly customised models that perform well on downstream tasks.



Ability to fine tune based on regular custom vocabulary additions.



Bodhi API supports coverage of 11+ Indic languages and 40+ dialects.

Accuracy Benchmarking

Accuracy benchmark test performed on with CER (Character Error Rate) and WER (Word Error Rate) as the evaluation metric without any normalisation*

Hindi

Model	Google STT	Azure STT	Bodhi-v2	
Test / Dataset	WER (%)	WER (%)	CER (%)	WER (%)
kathbath_noisy_hindi	16.70	15.10	6.39	15.81
indictts_hindi	18.30	15.20	3.16	11.95
kathbath_hindi	14.30	13.60	4.76	13.03
commonvoice_hindi	20.80	14.60	7.10	19.53
fleurs_hindi	19.40	24.30	6.96	16.17
mucs_hindi	17.80	15.10	5.39	14.00
gramvaani_hindi	59.90	42.30	12.52	26.84
Average	23.89	20.03	6.61	16.76

Kannada

Model	Google STT	Azure STT	Bodhi-v2	
Test / Dataset	WER (%)	WER (%)	CER (%)	WER (%)
kathbath_noisy_kannada	31.40	25.90	7.13	25.61
fleurs_kannada	33.80	31.00	7.88	23.52
indictts_kannada	32.80	25.30	2.72	18.13
kathbath_kannada	27.90	23.60	5.26	21.62
Average	31.48	26.45	5.75	22.22

Bengali

Model	Google STT	Azure STT	Bodhi-v2	
Test / Dataset	WER (%)	WER (%)	CER (%)	WER (%)
kathbath_bengali	20.60	16.70	5.64	17.75
kathbath_noisy_bengali	22.40	18.40	7.25	21.42
commonvoice_bengali	26.10	15.00	7.58	23.74
fleurs_bengali	27.30	29.90	8.81	23.38
indictts_bengali	37.00	21.20	3.33	18.86
Average	26.68	20.24	6.52	21.03

Marathi

Model	Google STT	Azure STT	Bodhi-v2	
Test / Dataset	WER (%)	WER (%)	CER (%)	WER (%)
kathbath_marathi	26.60	20.90	7.93	22.58
kathbath_noisy_marathi	28.40	20.90	9.60	25.69
commonvoice_marathi	27.50	19.60	6.42	25.08
fleurs_marathi	33.20	37.20	9.06	26.35
indictts_marathi	21.80	31.60	2.91	14.19
mucs_marathi	21.40	27.50	4.86	23.73
Average	26.48	26.28	6.80	22.94

Tamil

Model	Google STT	Azure STT	Bodhi-v2	
Test / Dataset	WER (%)	WER (%)	CER (%)	WER (%)
kathbath_tamil	31.10	28.10	5.79	28.14
kathbath_noisy_tamil	32.80	30.00	8.09	32.36
commonvoice_tamil	42.10	39.90	7.17	34.87
indictts_tamil	31.30	31.20	3.56	20.85
mucs_tamil	27.80	25.10	6.10	25.58
Average	33.02	30.86	6.14	28.36

* No number conversions, transliterations and other normalizations has been performed during benchmarking of Bodhi-v2.