

Scraping Social Media Photos Posted in Kenya and Elsewhere to Detect and Analyze Food Types

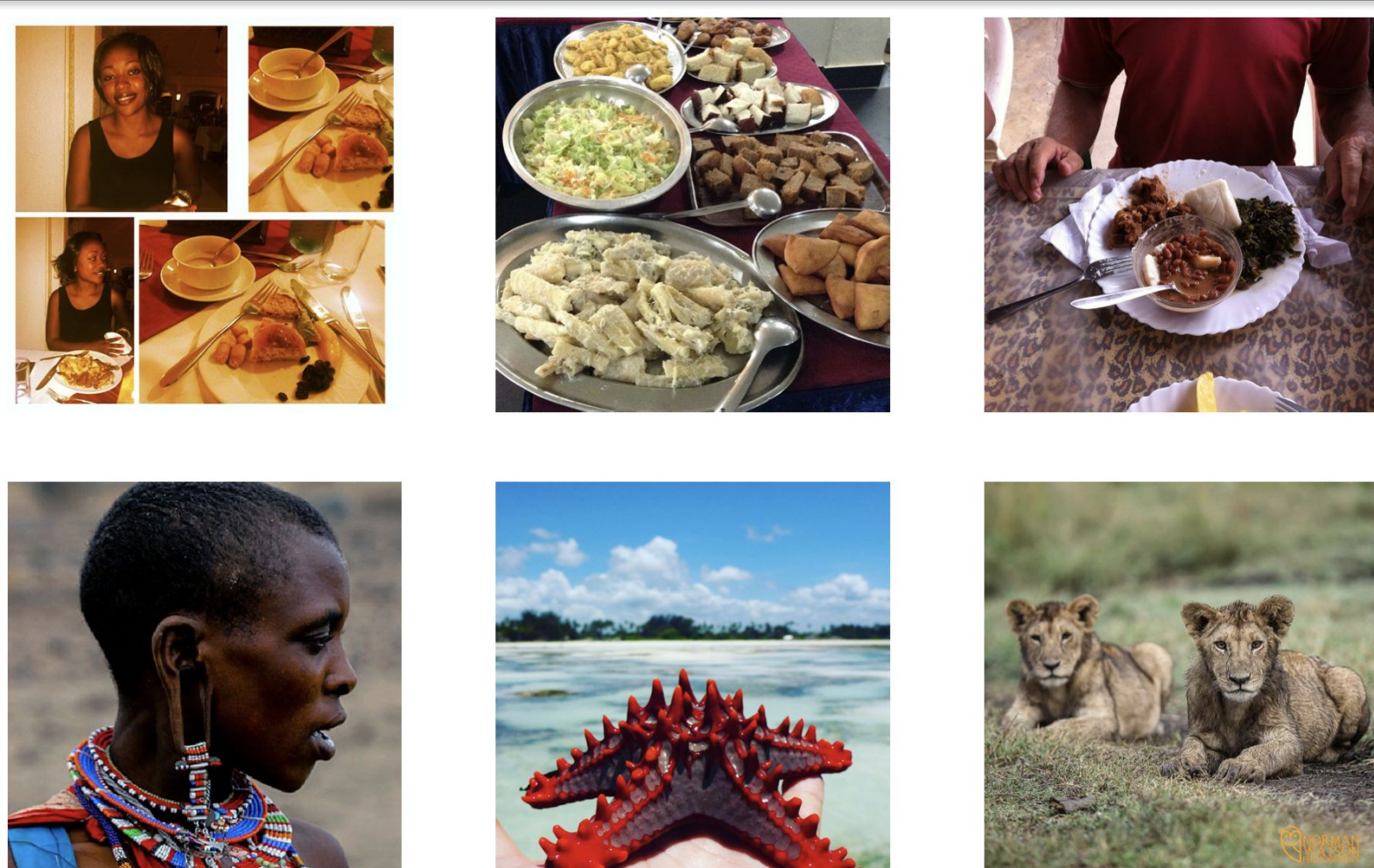
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Abstract

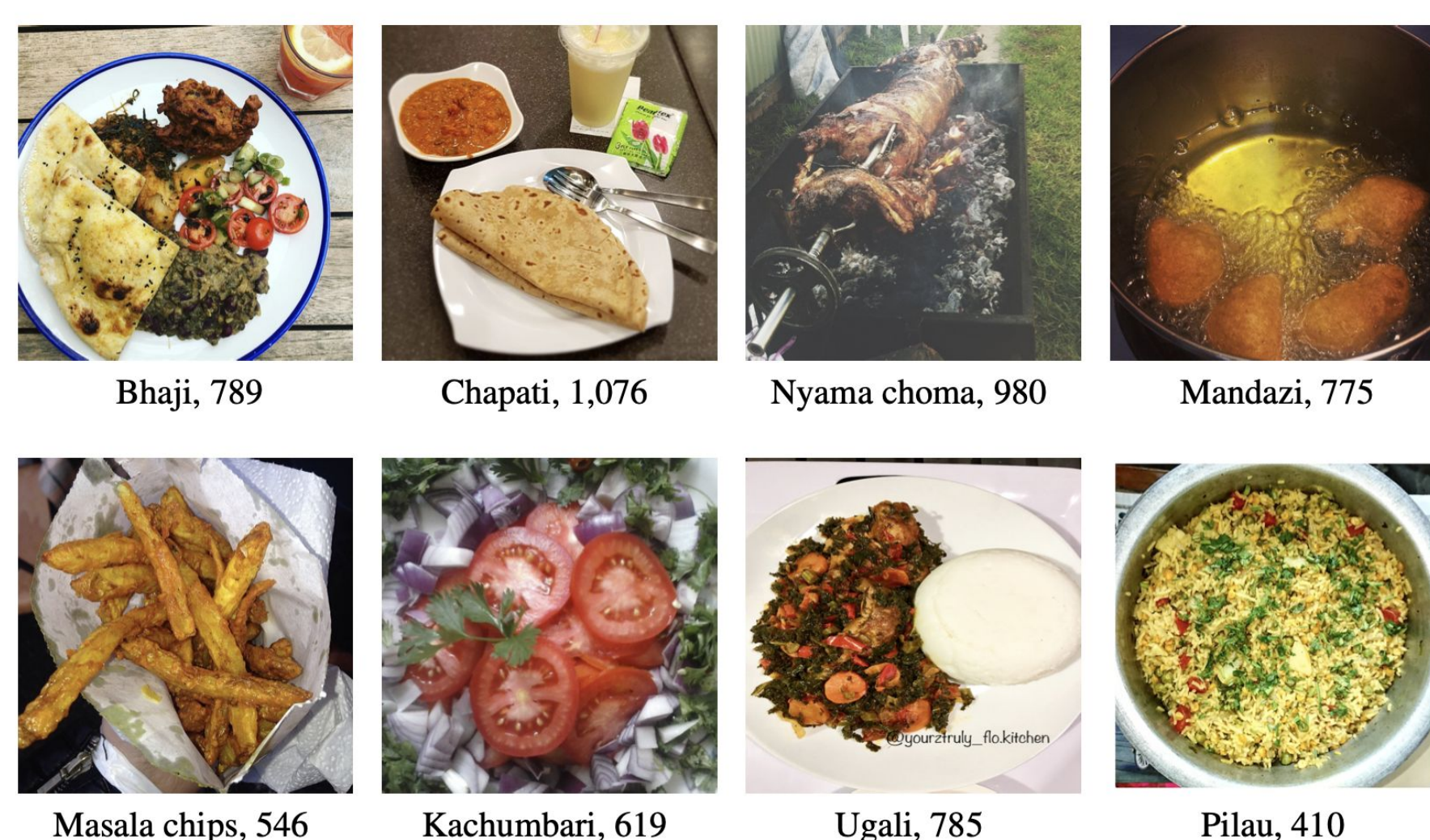


Sample Images from Kenyan104K dataset

We propose a **scrape-by-location** methodology for creating food image dataset from instagram posts. Using this, we collected 3.56M images. We detect all the food images from this dataset for a Kenyan food/non-food dataset, **Kenya104K**.

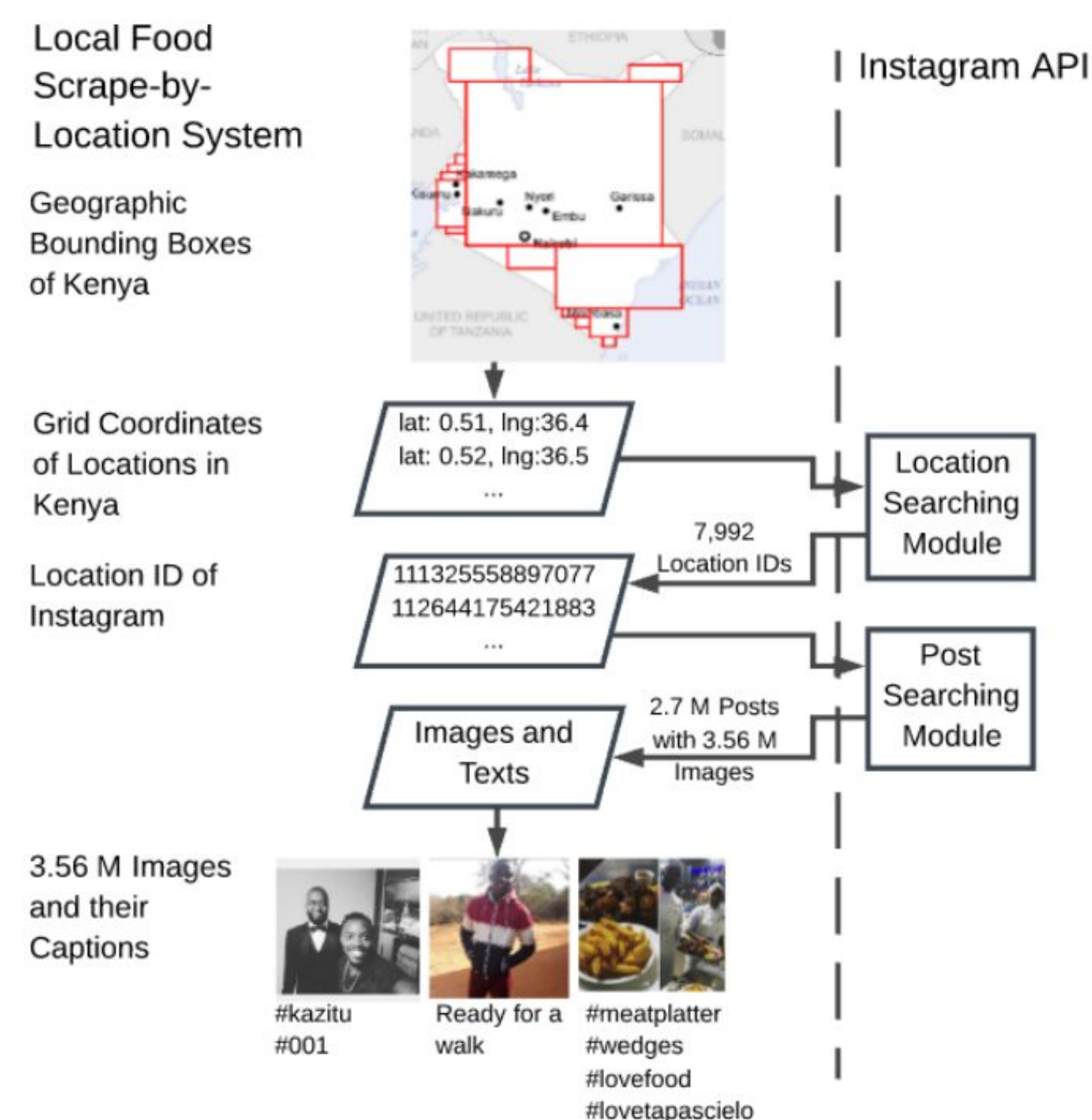
We also propose a **scrape-by-keyword** methodology for creating a Kenyan food type dataset. Our final food type dataset, as known as **KenyanFood13**, includes 13 Kenyan food types.

We create a Kenyan Food Type Recognizer, **KenyanFTR**, which recognizes each of the 13 food categories from **KenyanFood13** dataset.

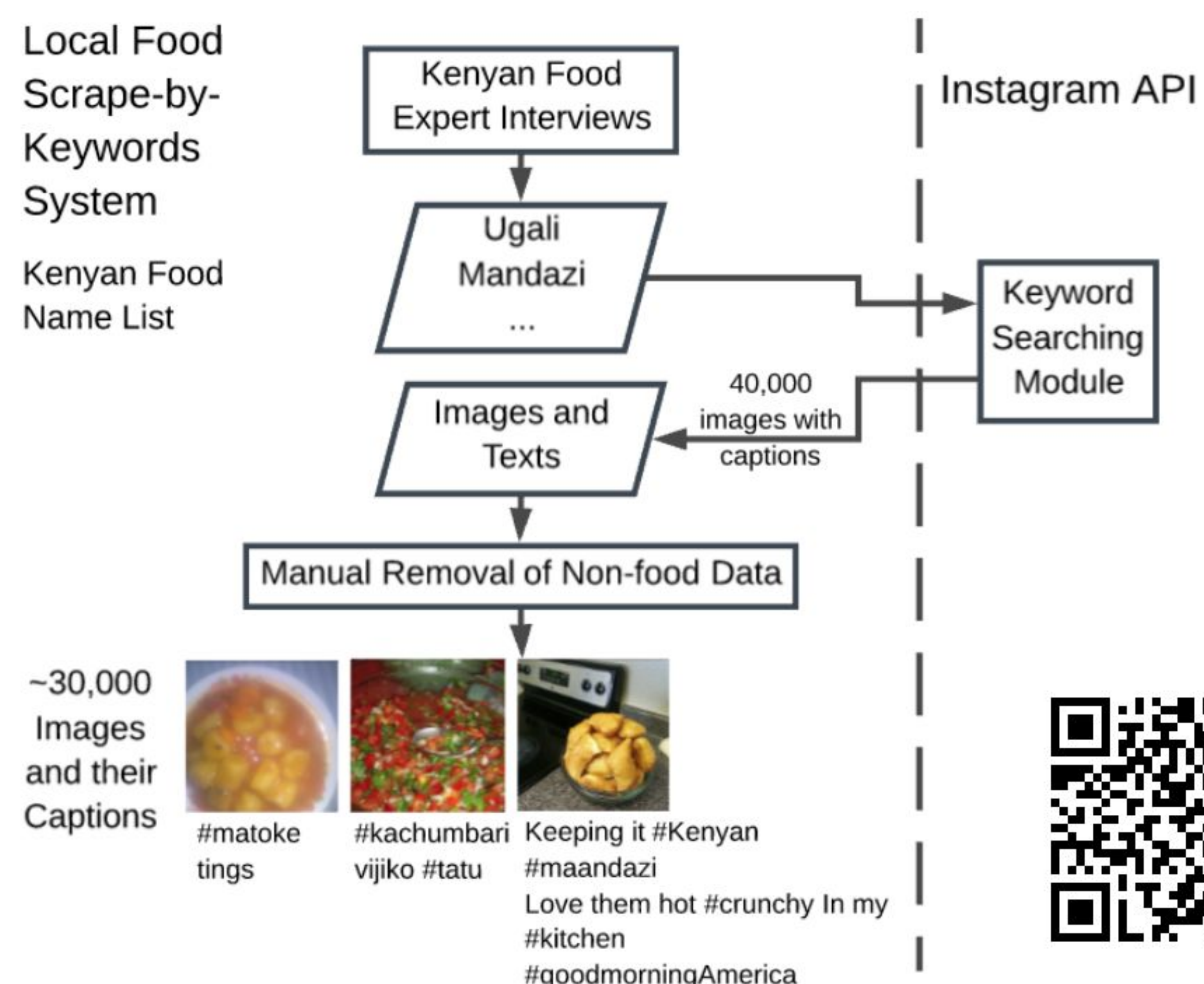


Sample images from KenyanFood13 dataset

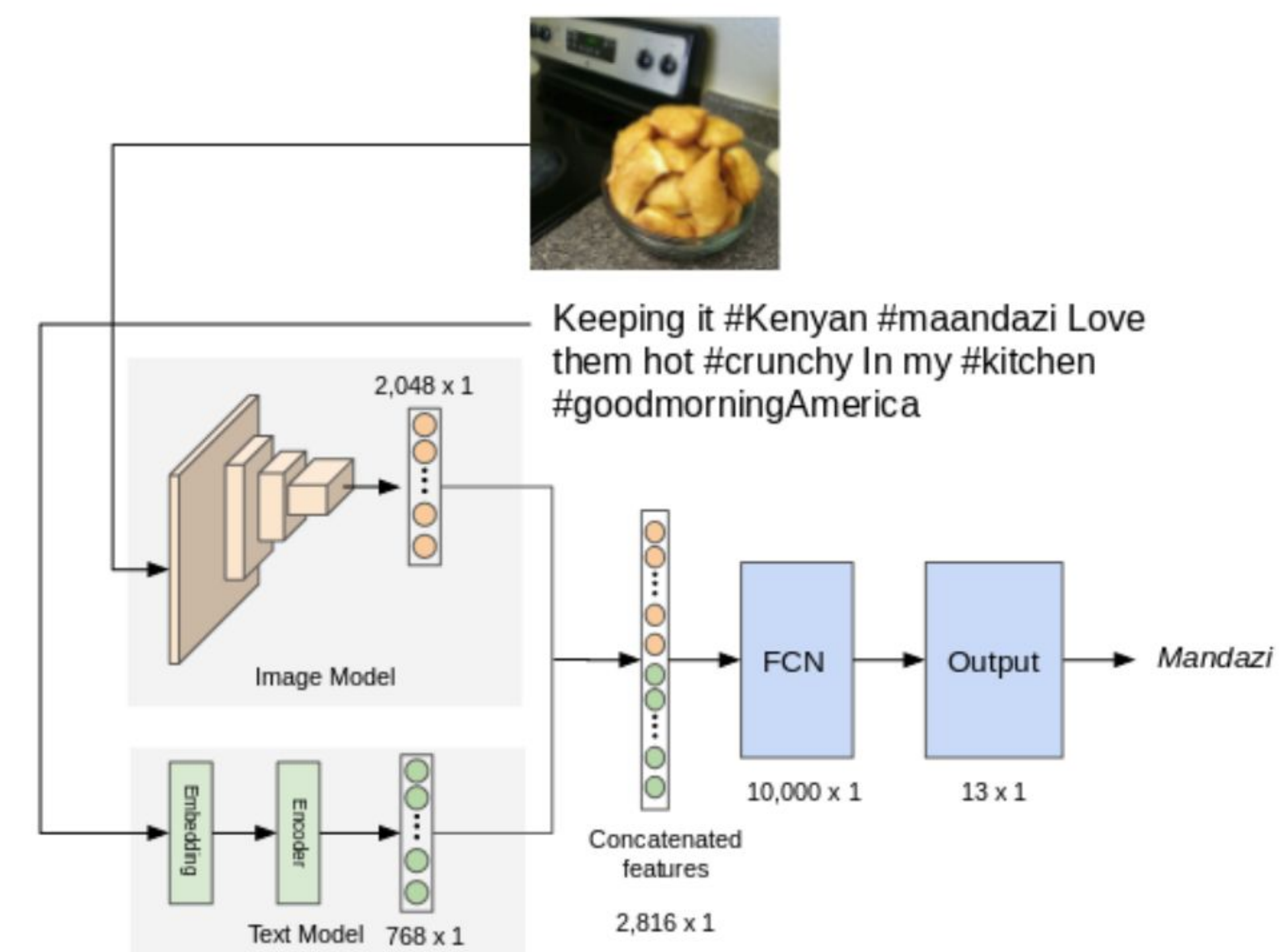
Scrape-by-Location Method



Scrape-by-Keyword Method



Kenyan Food Type Recognizer



Method	Test Accuracy	
	Top-1	Top-3
Image only	73.18%± 0.79%	92.04%± 0.44%
Caption only	65.30%± 1.70%	83.68%± 1.55%
KenyanFTR: Image + Caption	81.04%± 0.86%	95.95%± 0.44%

Method	Test Accuracy	
	Top-1	Top-3
InceptionV3+BERT	71.92%± 1.52%	88.57%± 0.68%
InceptionV4+BERT	67.40%± 1.49%	85.05%± 1.93%
ResNet101+BERT	76.74%± 2.02%	93.71%± 1.18%
DenseNet161+BERT	79.02%± 0.96%	95.14%± 0.73%
KenyanFTR: ResNeXt101+BERT	81.04%± 0.86%	95.95%± 0.44%



Most Confused Food Classes in KenyaFood13

