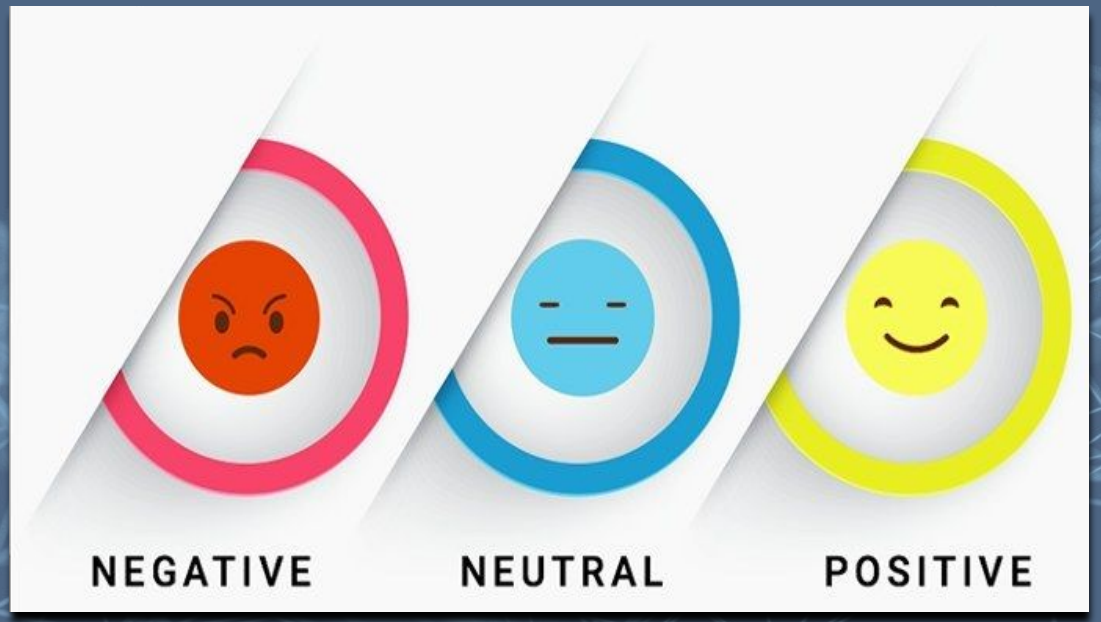
Sentiment Detection



The Team

Title	Name
Researcher	Loyiso Jiya
Co-researcher	Dayaan Sataar
Supervisor	Mehrdad Ghaziasgar
Co-supervisor	Reginald Dodds

Background

- **What is sentiment detection?**
  - Attempts to determine the feeling conveyed by any text
  - Can be positive, neutral, negative, or range
  - Text can be documents, forum posts or posts on social media
  - AKA sentiment analysis, opinion mining, opinion extraction
- **Why sentiment detection?**
  - Companies need feedback
  - conducted market research, focus groups, etc.
  - Inefficiency, time-consuming and costly
  - reviews after service is issued (i.e. MTN customer service)
  - reviews when given are often bias (mostly negative)

More Background

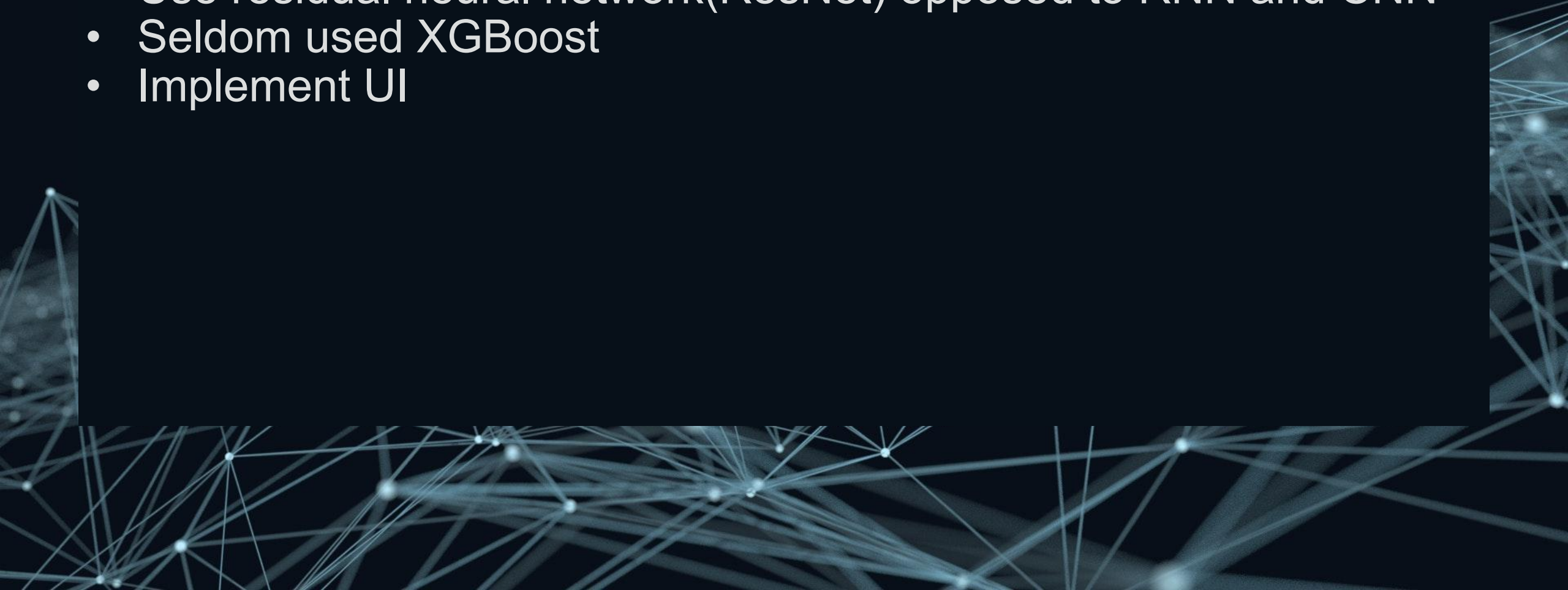
- Exponential growth of social media means free data
- Unbiased, unfiltered, and subjective to users
- Praise or criticisms of companies, political and social commentary etc.
- Gather and analyse data on a large scale
- Of these Twitter has about 300 mil users per month [1]
- Twitter is more favourable
- Twitter has open API
- Dell and Amazon use Twitter sentiment detection[2]
- Locally, Dr Ghaziasgar supervised an employee of one of the telecoms companies

Related Work

Authors	Dataset	Pre-processing	Technique	Feature Selection	Feature Extraction
Fouad et al. [3]	STS, Sanders and HCR	Tokenizing, removing links and emoticons	SVM, Linear regression, Naïve Bayes, and Majority Voting Ensemble	Information Gain	BoW, PoS tagging
Zheng et al. [4]	Online reviews from Chinese ecommerce website	None mentioned	SVM	None Mentioned	TF-IDF N-PoS-Grams
Jiaqiang and Xiaolin[5]	STS, SemEval2014, SS-Twitter, SE-Twitter, STS-Gold	None Mentioned	Random Forests, Naïve Bayes, SVM and Logistic regression	None Mentioned	Prior polarity, N-grams
Al-Smadi et al. [6]	SemanticEavaluation Workship 2016 (SemEval-ABSA16)	Remove unwanted special and Latin characters.	RNN and SVM	None mentioned	N-grams, PoS, Semantic features, word2vec
Zainuddin et al.[7]	STS and Sanders	Remove: hashtags, links, usernames, punctuation marks etc.	SVM	PCA, LSA and RP	PoS
Lauren et al. [8]	Sentiment Polarity Dataset v2.0	None mentioned	Logistic regression	PCA	ELM and word2vec

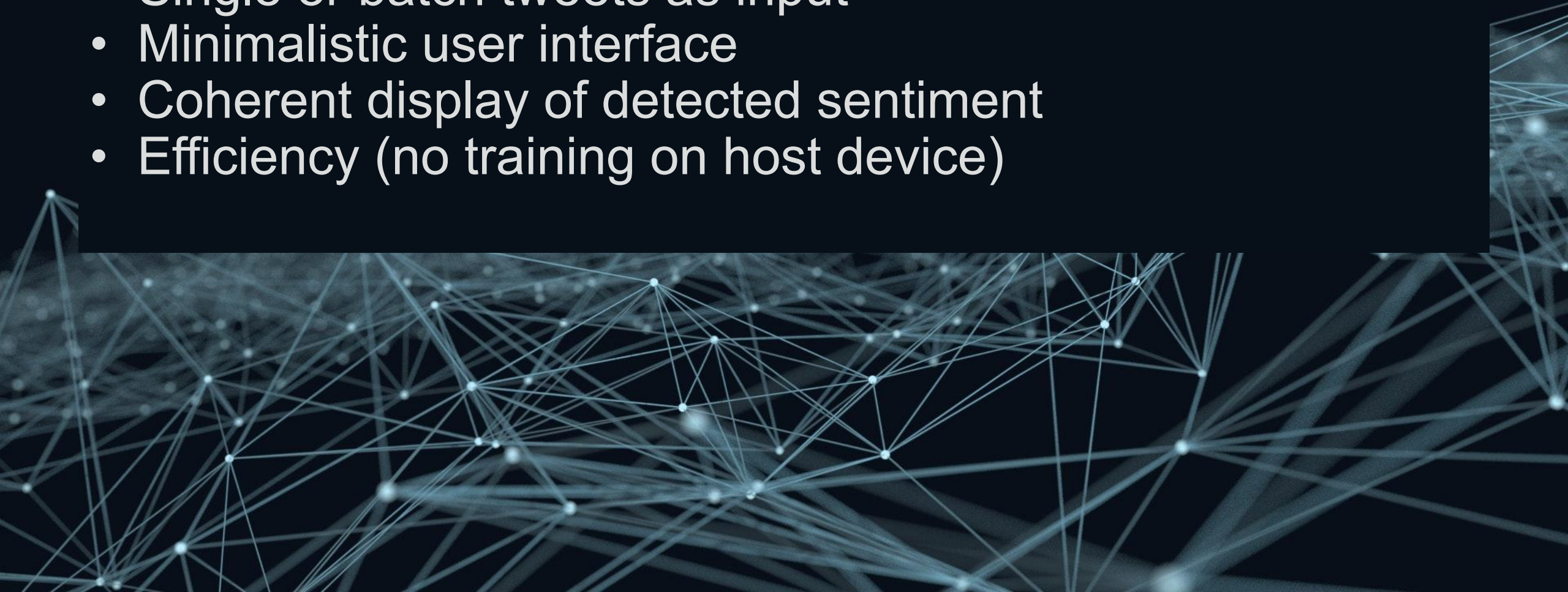
Our Contribution

- Compare feature extraction and feature selection techniques
- Use residual neural network(ResNet) opposed to RNN and CNN
- Seldom used XGBoost
- Implement UI



User Requirements

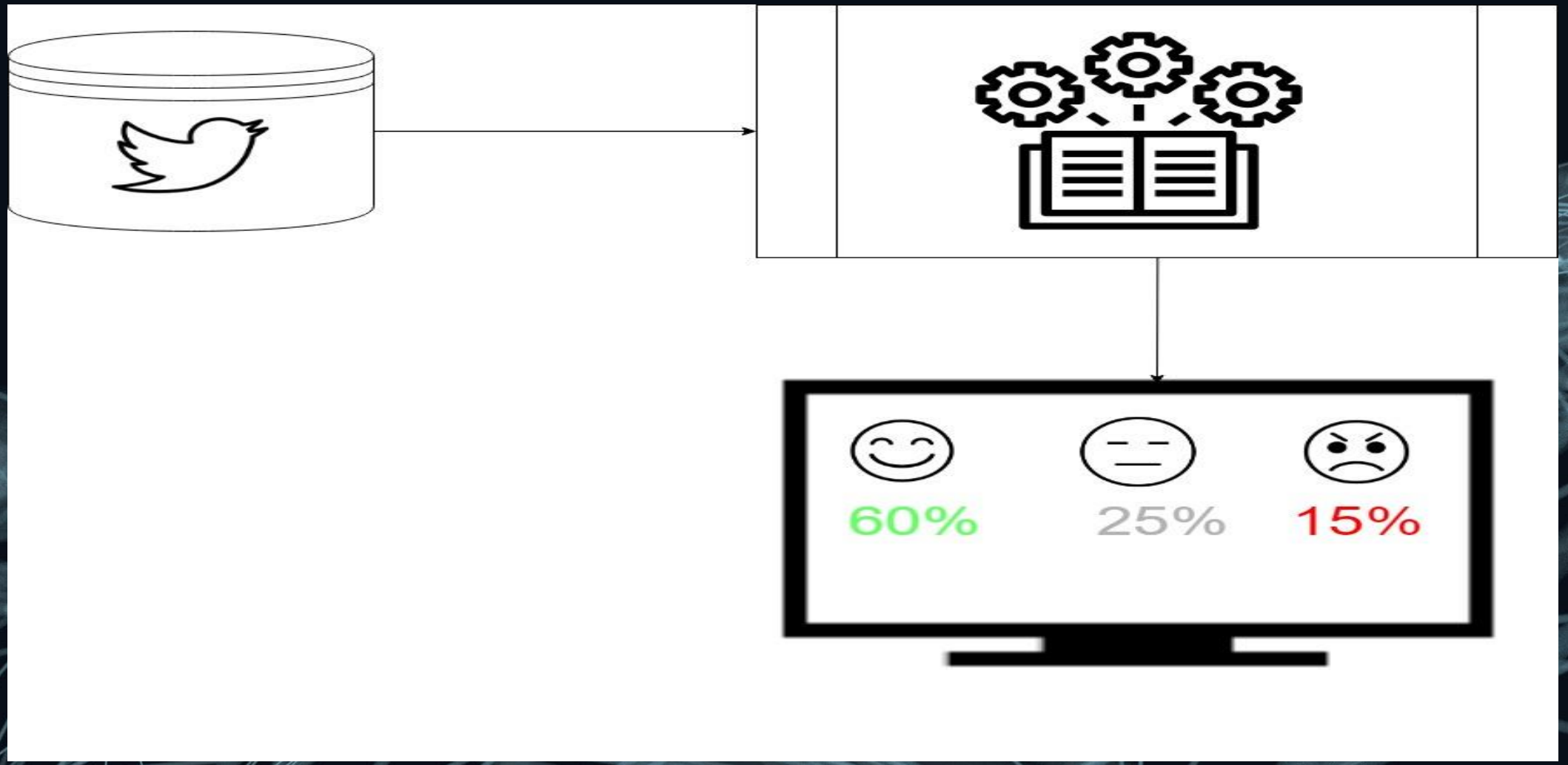
- From focus group within the research group
- Single or batch tweets as input
- Minimalistic user interface
- Coherent display of detected sentiment
- Efficiency (no training on host device)



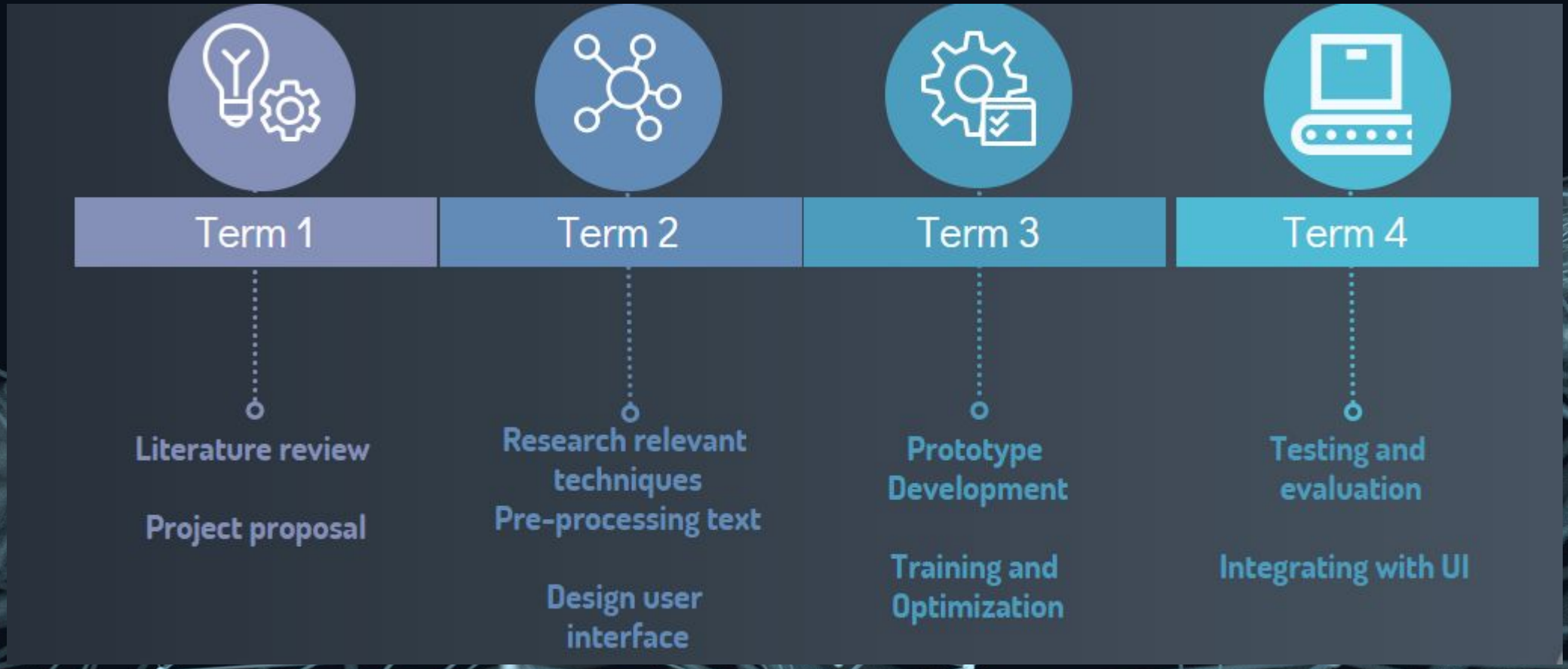
Requirement Analysis

- Stanford Twitter Corpus dataset
- Detect sentiment from given text (string or csv with multiple strings)
- Present detected sentiment to the user (graphically)

Visual Layout



Project Plan



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Questions…