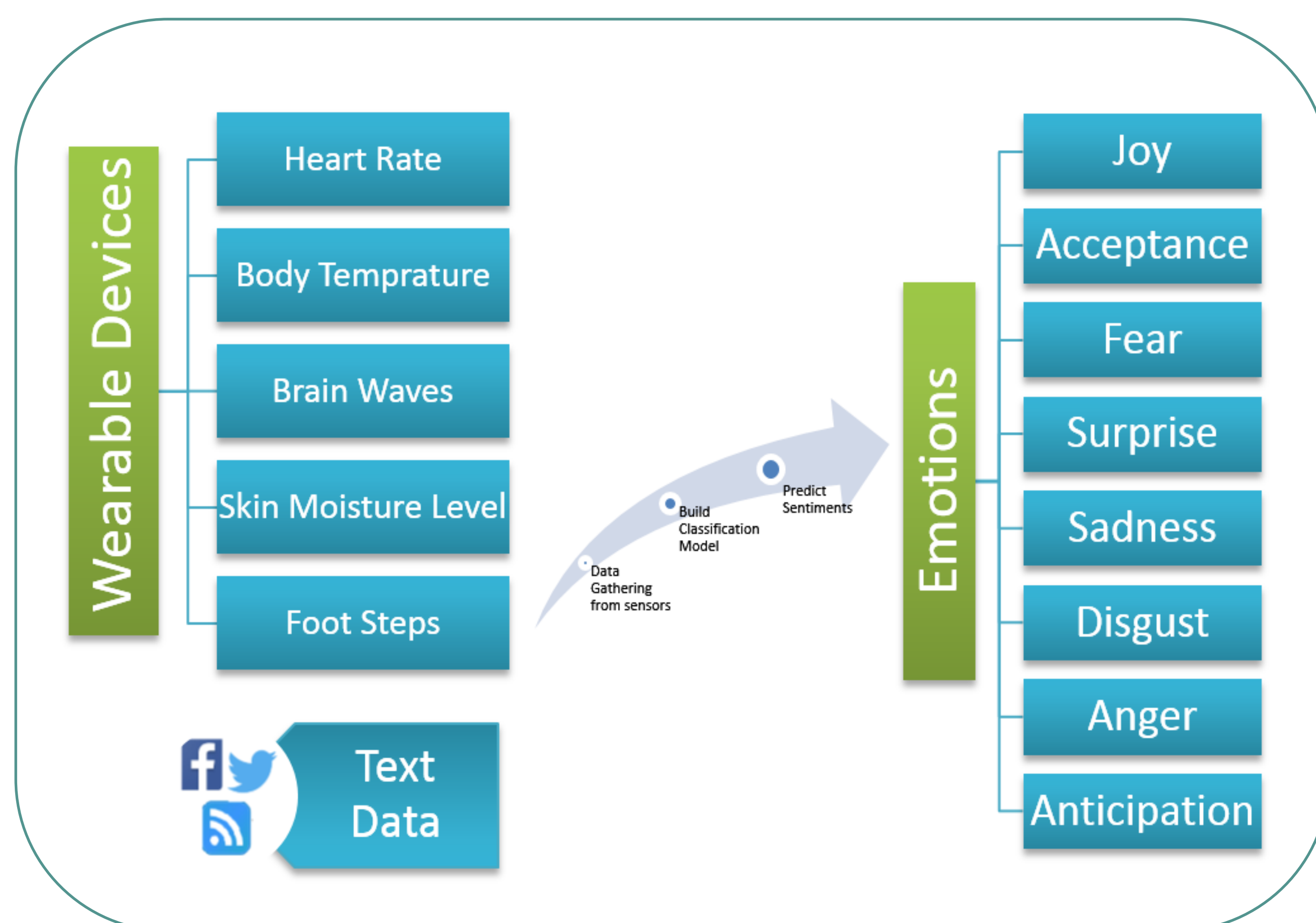


# Sensor Based Sentiment Analysis

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## Research Question

How sensor based wearable devices can be utilized to analyse human emotions and to express sentiments?



## Motivation

- Current approaches for sentiment analysis seek to identify the viewpoint(s) underlying a text span and focusing less on real feelings and emotions.<sup>[1]</sup>
- Sentiment analysis research is mostly concerned with the study of static data, but sensors embedded in wearable devices are a valuable source of information for real-time sentiment analytics.
- Sentiment Analysis on text data mainly categorizes the outcome in a generalized manner such as positive, negative and neutral emotions although more detailed categorization can be possible.<sup>[2]</sup>

## Goals.

- Design an adaptive model to analyze actual mood, sentiments and emotions on real-time data received from sensors embedded in wearable device.
- Validate emotional tone behind a series of words against real feeling and emotions, determined by measurements of body attributes.
- Deriving wider horizon as part of outcome of Sentiment Analysis rather than restricting it to traditional two or three possibilities.
- Determine how social feeds drive human mood.

## Primary Approach

- Discover significant attributes such as heart rate, skin moisture, body temperature along with their range of values from sensor-generated datasets.
- Gather relevant and sufficient data from sensors embedded in wearable device to perform sentiment analysis.
- Perform unsupervised learning on data to build a classification model for understanding and classifying emotions in real-time.
- Improve accuracy by building more robust model to provide improved personalized services.

## Work Breakdown Structure

1. Review of existing approaches and outcomes
2. Model Conceptual and Algorithm Design
3. Data gathering, cleaning and Unification
4. Implementation
5. Performance Evaluation
6. Model Optimization

## References

1. Birmingham, Adam and Smeaton, Alan F. (2010) Crowdsourced real-world sensing: sentiment analysis and the real-time web. In: AICS 2010 - sentiment analysis Workshop at Artificial Intelligence and Cognitive Science, 30 August - 1 September 2010, Galway, Ireland.
2. N. Kaji and M. Kitsuregawa, "Building lexicon for sentiment analysis from massive collection of HTML documents," in Proceedings of the Joint Conference on Empirical Methods in Natural Language Processing and Computational Natural Language Learning (EMNLP-CoNLL), pp. 1075-1083, 2007.