**Emotion classification from text using machine learning**

**Abstract.** Text-based input becomes a common channel for humans in sharing their opinions/emotions to the product or service through online social media, shopping platform etc. Humans are easy to make errors in interpreting emotions, especially the emotion that derived from text based. The main aim of this project is to develop text-based emotion recognition and prediction system. Therefore, the model was developed using supervised machine learning classification algorithm such as Multinomial Naïve Bayes. Data pre-processing techniques such as stemming, stop-words, digits and punctuation marks removal, spelling correction, and tokenization were implemented. Multinomial Naïve Bayes classifier resulted the best performance with an average accuracy of 64.08%. Text-based emotion prediction system to interpret and understand human emotions was successfully developed.

**1.Introduction**

Human emotions can be expressed across two channels which is via verbal (expressed emotion in words, sounds or speech) and non-verbal (includes expression through facial, gesture or body movement). The way of human-computer interaction which allow computers to interpret and understand human’s emotional and attentional expressions is necessary for the computer in several applications.Emotion recognition (also known as Artificial emotional intelligence) is an affective computing whereby the development of systems utilised in the process of detecting, interpreting, and predicting human emotional state such as anger, happiness, sadness, etc. This kind of system may have plenty helpful applications, for example it can use to measure how pleasant the residents of the country are. This system is also useful in suicide prevention which initially interpreting user suicidal thoughts that shared in online platforms then some further action is taken to save the user with heavy suicidal thought Besides, emotion recognition system also applied in analysing and understanding users or customer’s satisfaction toward product or services based on customer review.

Nowadays, the World Wide Web website has emerged into Web2.0 which allow humans to communicate with each other through social media sites (such as Facebook, Twitter, and Instagram), video sharing sites (such as YouTube) or blog. Human widely interact with computer via texts while multimodal human-computer interaction denoted to be appealing. It cannot be denied that most of the people like to share their opinion or express their emotions via online social media or comment. Thus, expressing emotion in texts or words become common, a huge amount of data especially textual data are generated and detecting the text-based emotion plays the biggest challenge for either human or machine.

