Brief Literature Structure

1. General characteristic of emotion in speech signals
   - Speech is a non-linear time sequence signal closely related to time
   - Emotion conveyed by multimodal cues; speech, gesture, face, physiological/bio signals
   - Our focus is emotion in speech signal
   - Emotion in speech is context-sensitve information
   - At any given moment, blended emotions in brain even if there is one dominant emotion
2. Application of Emotion in HCI and Availability of Emotion annotated database
   - Increased awareness of important role of emotion in HCI
   - Lack of emotion annotated database
   - Insufficient training data provided for deep learning algorithms used for emotion recognition
3. Representation of emotions and Emotion models

   3.1 Three types of theories generally used ;
   - appraisal theory by Scherer
   - Abstract dimensions
   - Verbal category ; Ekman, Plutchick's

   3.2 Emotion models ; categorical / dimensional
   - Brief explanation of different models
   - Pros and cons of each model

4. Challenges of emotion annotation
   - Range in difficulty based on data being annotated, annotation scheme, training received by annotator
   - Multimodality
   - Subjectivity of annotation tasks
   - Heavily dependent on user's interpretation
   - Annotation Training will lead to improvement on inter-raters' agreement scores?
     - Contradicting arguments between Bayerl and Mohammad
   - Gradation and variation over time
5. Factors affecting quality of emotional database

   5.1 Single modal feature extraction vs multi-modal fusion
   - Emotional state using unimodal emotion feature cannot fully describe a certain emotion of the user at the moment
   - Multimodal fatures allow capturing more comprehensive and detailed emotion
     - Portray current emotion from different angels which provides additional emotional information

   5.2 Comparison made on use of Acted/ Induced or Real emotion
   - Challenges associated with annotation of real-life emotions vs acted/ induced emotion
   - Trends towards use of natural emotion
6. problems exhibited by existing annotation tools
   - time delay between annotation and video,
   - laps in concentration
   - inaccuracy of annotation due to sensitivity of joystick/slider

- inability to annotate remotely or online

7. Evaluation of existing tool
   - List of various existing tool (Feeltrace, Transcriber, GTrace etc) and their variations
   - Brief explanation of features and validation of the tools if exists
8. Trends on currently developed tool
   - Preferred platform type; web-based
   - Using natural emotion data
   - Joysticks or mouse based tool comparisons
9. Improvement on the previously developed EmotionGui

   9.1 Evaluation of survey results
   - Need improvement on general GUI design
   - Difficulties with colour coding
     - Hard to distinguish when multiple annotated data are displayed together
     - Colour gradation over time made confusion
     - Need a better way to present annotated emotional data over time
10. Final annotation tool evaluation
    - Survey implementation/ questionnaire in detail