


Chapter 12


A Critical Analysis of the Emotive Content in Customer Speech for a Robust CRM

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ABSTRACT

Emotion analysis plays a vital role in Customer Relationship Management (CRM), impacting customer interactions and brand perception. While previous CRM systems have relied mostly on text-based sentiment analysis, the expanding usage of audio-based feedback underlines the necessity for speech-based emotion recognition. This research analyses vowel prosodic qualities in customer speech to better emotion prediction, boost customer retention, and expedite corporate procedures. By concentrating on vowel-level emotion extraction, this study intends to boost the accuracy and reliability of emotion classifiers via an analysis of consumer audio

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feedback from online purchase platforms. Advanced speech analytics approaches are applied to decipher the emotional content of utterances by studying prosodic variables such as F0, MFCC, ZCR, STE, and formants. The results contribute to translating sentiment research into practical CRM solutions, developing customer-centric business strategies, and boosting the usefulness of business analytics.

INTRODUCTION

It is well known that emotion plays a crucial part in human communication and can provide information about customer satisfaction. Customers frequently express their opinions about freshly bought products more efficiently via voice communications in their native language than in written form. Increasingly, customers offer their comments on social media platforms and online purchasing websites in both text and audio formats. Some customers prefer expressing their feedback and reviews in voice and video messages, which typically represent genuine opinions about the products. Processing these unstructured customer utterances for emotion recognition delivers a more accurate depiction of thoughts compared to text-based evaluations. Customer service executives may better comprehend complaints, resolve customer difficulties, and make brand strategies by identifying emotions in customers' speech. Emotions have a key influence in determining consumer social relationships. To accurately analyze and interpret the emotive content is difficult when the variances are manually understood in the customer's voice which takes time and needs sophisticated language abilities. This difficulty has prompted the development of automated speech-emotion recognition (ASER) systems, which are designed to interpret and extract emotions effectively. Applications such as online games, contact centers, customer care services, online classrooms, and online commerce increasingly rely on voice input to understand customer behavior and their pattern of purchase for Customer Relationship Management (CRM). These systems analyze speech signals to detect emotions like happiness, sadness, anger, and surprise or mixed emotions, enabling businesses to respond effectively to customer needs. The current study focuses on an in-depth analysis of the affective content inherent in customer speech, with a special emphasis on the significance of vowels. Prior research has underlined the strategic value of emotion-evocative communication, enabled the prediction of emotional reactions, and produced emotive effects. Voice-only communication has been proven to boost empathic accuracy since speech signals provide precise information on the emotional states of speakers (Kraus, 2017). Within the context of customer contacts, assessing the emotional content in speech offers the potential to boost customer-centric activities and establish meaningful connections. Emotional tones carried through speech often reflect the speaker's sentiments about a product

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