

Abstract-VoIP (Voice Over Internet Protocol) is a technology that allows long-distance voice conversations through Internet media. VoIP in its progress can be misused by parties who are not responsible for committing crimes or better known as Cybercrime. This paper is to determine the characteristics and analyze digital data in the form of voice on VoIP services that can be used to identify differences and similarities in audio. The initial process is carried out by collecting evidence and taking five comparative votes. Sound data is acquired using the Forensic Imaging method to produce image files, then an analysis of each sound is performed using the Voice Recognition method by comparing the pitch, formant, and spectrogram values. Then an analysis of each sound evidence and five comparative votes was obtained and the best accuracy was 80.95% from the pitch analysis, 95.23% from the formant analysis using the One-Way ANOVA method, 76.19% from the formant analysis using the Graphical Distribution method, and 90.47% of the spectrogram analysis. The results of this paper prove that the application of the correct forensic rules and the right analysis will get the characteristics of VoIP voice itself and produce an acceptable level of accuracy to distinguish voice owners.