

## *Abstract*

*Valvular Heart Disease (VHD) is a type of heart valve disease that is triggered by a disorder or abnormality of one or more of the four hearts that makes it difficult for blood to flow into the next chamber or blood vessel, or vice versa. In recent years, many methods have been proposed to detect the occurrence of VHD. With advances in technology to detect these abnormalities can use telemedicine technology. This paper analyzes the PCG signal (Phonocardiogram) from the patient. There are 3 stages in detecting VHD, namely denoising, feature extraction, and PCG signal classification. The accuracy value obtained from the whole detection process can change and be influenced by the results of the classification algorithm and hyperparameter. Therefore, the selection of the right hyperparameter is important. Of the many pieces of literature that propose VHD detection. To solve the above problems, this research proposes the development of a classification algorithm that supports the improvement of VHD detection accuracy. In addition, prototypes based on the proposed algorithm will also be developed. This research also analyzes the accuracy of the proposed prototype detection. The methods used in this research are 1. Literature study on VHD detection, 2. STFT Denoising, 3. MFCC Feature Extraction, 4. SVM classification algorithm development, 5. Evaluation, 6. Tune SVM algorithm to get higher score. The performance test results show that the proposed algorithm has achieved an average accuracy of 99.5%, F1 Score is 99%, recall is 99%, precision 100%.*

***Keywords: VHD, PCG, Classification, SVM***

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