

**Introduction.**

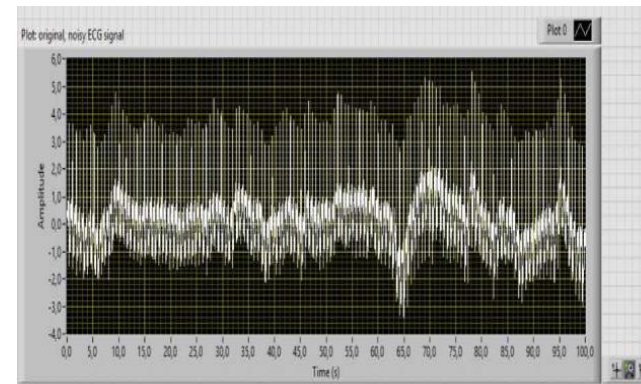
Cardiovascular disease is a major killer that causes death worldwide [1], [2]. Significant efforts have gone into the introduction of various technologies for the diagnosis of heart disorders, allowing physicians to recognize earlier symptoms of heart problems for further medical attention. For this, an important place is occupied by research on the development of methods and algorithms for the analysis and processing of biological signals. In accordance with the investigated object of the human body, one can choose one or another method or algorithm for analyzing biosignals.

Recently, neural networks have been widely used for the diagnosis of cardiovascular diseases, namely the processing and analysis of ECG. The use of neural networks allows you to optimize the diagnostic process, avoid erroneous diagnoses, determine the state of the cardiovascular system and, at the end, give an accurate assessment of the type of cardiovascular disease. The trained neural network can be used to classify ECG signals and thus help diagnose the correct symptoms or diseases of the cardiovascular system.

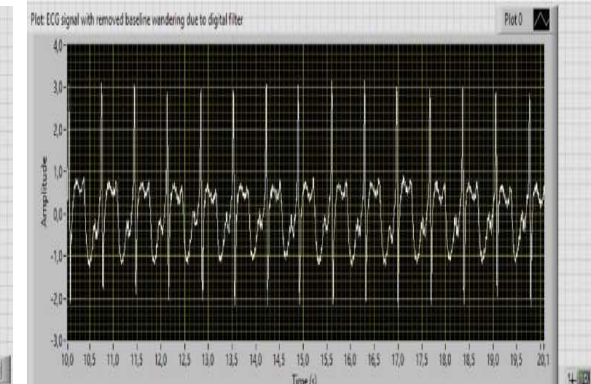
In this regard, we have proposed methods and algorithms: pre-processing of signals, extraction of functions Q, R, S, P, T; training of neural networks for diagnosing heart diseases; classifying the characteristics of the electrocardiogram for various possible states of the cardiovascular system using neural networks, determining the time and amplitude characteristics of the ECG functions, calculating the intervals between them and the heart rate.

The results of the research are algorithms for training neural networks and a method for classifying ECG characteristics for diagnosing heart diseases, implemented on the Matlab programming system.

**Figure 1. Original ECG signal with noise.**



**Figure 2. Elimination of basic wandering due to digital filter.**



1. Magrupov T.M. Analysis and processing of biomedical information. - Tashkent: Tashkent State Technical University, 2012, 152 p.
2. Magrupov T.M., Magrupova M.T. Conceptual design of medical technology.- Tashkent: Tashkent State Technical University, 2015,127 p.

