

Annotation

Mykhailo Hlushchenko's project on the topic «Automated device for smoke detection» is presented.

This bachelor's degree project is concerned with the development of the automated device for smoke detection in living areas and the estimation of smoke concentration. Existing technologies were combined into one automated system and the research on the Mie scattering was conducted in the diploma project.

The purpose of the project is to develop and calculate the parameters of the automated device for smoke detection, draw the electric circuit diagram, draw the functional diagram, and describe the principle of the circuit operation process.

The author explains that infrared and blue radiation detectors were selected for the project taking into account the relative spectral characteristics of the emitters. It was noted that the optical scheme was developed and the Mie scattering was designed in the Zemax program, as well as the electrical path for operating with the infrared radiation detector and current source.

Then the author provides the information on the calculations of the electric path and the calculation of the average particle diameter according to the Mie theory of scattering.

The general consideration is supported by the graphic part of the diploma project, including the optical scheme, the electric scheme of the circuit diagram, and the functional diagram. Drawings of the optical scheme details are developed and presented as well.

Key words: Mie theory of scattering, relative spectral characteristics, detection device, two-channel technology.