Develop a Model for Device Photomedicine Diagnosis of Skin Diseases

Melnyk Ivanna

Abstract - **The present work describes the relevance of developing a modern model lightdiahnostic device based on new technologies fotomedychnyh optical diagnostics.**

Keywords – **LED, matrix, the spectral characteristics.**

I. Introduction

Lately advances in optics, photomedicine and computer technology have allowed a miniature model of a unique device that allows indirectly through assessment and analysis of optical and physical properties of the medium distribution of radiation to obtain information about the content area test.

II. Discussion

Light rays naturally, so does not create negative side effects and serves as a man for the diagnosis and treatment of many diseases. Therefore it is not surprising that as optical emitters in the most modern diagnostic devices are increasingly used singular or multiple LED elements (LED matrix) [1], which enables to obtain program-controlled exposure biotissues, which are the surface and subsurface layers of the skin Fig.1.

In a medical practice for detection and identification of skin diseases, we used the tabular values of the intensities of the reflected light from surfaces such flows. For each of the LEDs, these tables are test matrices to identify the disease in its development during treatment.

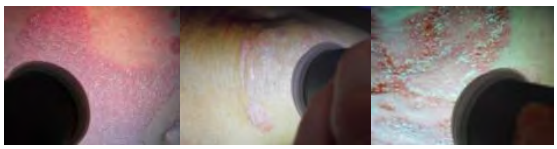

Fig.1. Cutaneous manifestations during diagnosis.

The current layout lightdiahnostic the subject device consists of a measuring-controlling blocks and optical-electronic [2].

The work performed by this unit can be displayed using the structure Fig.2 [3].

Measuring-controlling unit for control of optical-electronic unit and measuring the signal from it.

In optical-electronic unit falling flux of LED matrix after passing through the protective optically transparent element creates reflected from the surface of the object studied biomedical luminous flux. Through the polystyrene and hits the photo receiver D, which are measured by certain parameters of biomedical object (BO). Analog signals from the sensor D amplifiers come in Ap and one on switch Sw, which selects the desired signal and sends it to the ADC. The signal from the photo receiver to receive operational amplifier, and after that to the meter photo current. The signal from the ADC in digital form enters the microcontroller mC. Software mC handles data from the sensor and passes through the circuit due to a personal computer PC, where the visualization of these data.

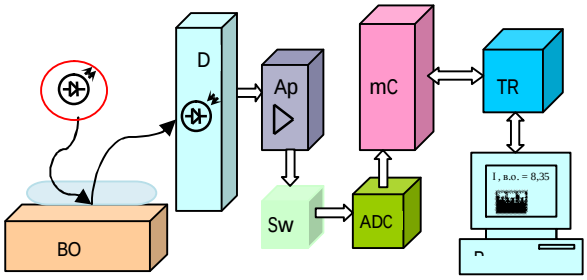

Fig.2. Structure of the device.

III. Conclusion

The device is particularly useful due to the use of LED elements, which allows to solve the basic problem of the interaction of optical radiation with biological tissues, which is due to optical inhomogeneity and cause strong scattering of visible and near infrared (IR) spectral ranges, which in turn significantly limits the spatial resolution and depth probing of many optical methods.

References

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Ivanna Melnyk - Lutsk National Technical University, Potebnia Str., 56, Lutsk, 43018, UKRAINE.
E-mail: Iwanna_M@i.ua.