Scan Your Skin

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Cancer is one of the most dangerous diseases in the world. Briefly, Cancer is an abnormal cell growth that can spread to other parts of the body. This growth is called tumor. According to International Agency for Research on Cancer, it is estimated that 18,078,957 new cases will be diagnosed and about 9.5 million people will die from the disease in 2018. There are more than 100 type of cancer, but in our research, we will focus on skin cancer. Skin cancer represents 40% of the total cancer types.It is divided into two categories which are melanoma and non-melanoma (basal and squamous cell carcinoma) skin cancers. According to the American Cancer Society, about 91,270 new cases of melanoma skin cancer will be diagnosed, and 9,320 cases will die in 2018, but basal and squamous cell carcinoma account for 2000 deaths. There are many factors that cause skin cancer such as: Exposure to ultraviolet radiation, precancerous skin lesions (Actinic keratoses.), So, first, we thought in making an image processing and machine learning based-machine made by a raspberry pi and a camera which is programmed by python programming language using OpenCV library and NumPy, but it was concluded that this device will cost us about 2400 pounds which is quiet expensive, so the pixy2 camera was used with an Arduino and thus, the system will cost us about 1940 pounds. Briefly, the function of this machine is to capture the tumor site and compare it with a set of images stored in the database of our program and thus, it returns the type of tumor and whether it is malignant or benign. It is expected that this device will decrease the percentage of deaths caused by skin cancer as it will help in the early detection of the disease so as to be treated early by the doctors.

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