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Malnutrition Analysis Using Images of Nails and Skin

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ABSTRACT

In this work, we are developing a concept for disease detection in the human body by employing nail images of human fingers and evaluating data from basic nail color images. The illness diagnosis approach for this study is as follows: A person's nail image is fed into the system. The technology will process a nail image and extract nail features for illness diagnosis. First, machine learning generates training data from a nail image of a patient suffering from a specific condition. The extracted feature from the input nail image is compared to the training data set. We discovered in this experiment that the color features of nail images are accurately matched with training set data.

Keywords: ML, Malnutrition, Image Processing, CNN.

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I. INTRODUCTION

Universities Malnutrition is a problematic issue that has captured the attention of the entire world, as well as many researchers. Nutrition is essential for goo health at any age. Because the pattern of parenting in many societies prioritizes toddlers, the health and nutritional state of children is one of the benchmarks that can indicate the healthy condition of the larger community. Malnutrition does not strike suddenly but develops gradually due to insufficient weight gain. Over time, changes in toddler weight are an early indicator of a child's dietary situation. Infants who did not gain weight twice in six months were at risk of malnutrition 12.6 times more than those who gained weight regularly. Based on this, weight change information can be used to map the possible malnutrition problems. Thus, information on probable malnutrition areas is required as input for government and public policymakers to avoid malnutrition and implement nutritional interventions. Image processing is a technique for converting an image into digital form and then performing some operation on it to obtain a better picture or extract relevant information.

Image Five Format, Joint Photographic Expert Group, Graphics Interchange Format, Portable Network Graphics, and Row Image File are the five forms of images. A computer can readily classify more than 16 million hues; however, the human eye has limitations in distinguishing colors, and some people suffer from color blindness. So, as compared to human eyes, performing nail color analysis by computer is a superior technique. Human eyes have limited resolution; thus, discovering deviations in near-by pixel intensity is impossible, while computer vision can detect every pixel accurately. Pathological tests are complex and uncomfortable; the patient must be available for pathological tests while the system's analysis is calm. This system would benefit the patient because the patient does not need to be Present in person.

Suppose the doctor is not available for consultation. In that case, the doctor can diagnose the symptoms and write an appropriate prescription for the disease that is being diagnosed simply by receiving the patient's nail image. The suggested approach would extract color features from human nail images to forecast illness. The technology focuses on image recognition utilizing human nail color analysis. Many diseases can be discovered by studying human hand nails. In this setup, a camera is used to capture the image of a human nail.

The taken image is submitted to our system, and the region of interest from the nail area is manually selected. The selected size is then analyzed further to extract nail properties such as color. For disease prediction, this nail color characteristic is matched using a small training data set. As a result, the system is helpful in the early phases of projection.

II. PROBLEM STATEMENT

Malnutrition is one of the largest public health problems in developing Countries.

India accounts for one-third of all malnourished children worldwide, with a frequency as high as 29.4%. Chronic malnutrition in childhood stunts growth slows brain development, lowers motivation and energy levels, and lowers educational performance. This study aimed to examine the relationship between malnutrition and academic performance in 8–12-year-old children using data from their health records. This cross-sectional study was conducted among 8–12-year-old children, with sample children photographs and text input data, with the prevalence set at 50% and the precision set at 10%.

III. LITERATURE SURVEY

NO	TITLE	METHODS	DATASET	REMARKS
1.	The Modeling of Artificial Neural Network of Early Diagnosis for Malnutrition [1]	Back propagation	COCO-2017	This research consisted of 2 phases, which were training phase in which it generated ANN weight by using feed- forward of activation function, and testing phase in which the result of the previous stage was tested to obtain output.
2.	IT Application to Mapping The Potential of Malnutrition Problems [2]	mapping	PASCAL VOC 2012	This paper focus to find a model of IT application that can be used for mapping the potential of malnutrition problems and the rate of utilization of posyandu.
3.	Managing Child Malnutrition via Digital Enablement: Insights from a Field Trial [3]	integrated digital approach	COCO-2012	In this paper that Malnutrition management requires an integrated digital approach – that not only looks at making data available, but also establishing relationships between various program indicators, overlaying that with socio-economic conditions of the region and family demographics.
4.	Determining The Nutrition of Patient Based on Food Packaging Product Alignment [4]	C Means Algorithm	COCO-2017	The result of the decision will give 3 clusters on nutritional status is good nutrition, malnutrition and better nutrition.

IV. BLOCK DIAGRAM



Fig 1.Block Diagram

DESCRIPTION:

In this research, we are developing a concept for disease detection in the human body by employing nail images of human fingers and evaluating data from basic nail color images. The illness detection procedure in this study is as follows: A

person's nail image is fed into the system. The technology will process a nail image and extract nail features for illness diagnosis. First, machine learning generates training data from a nail image of a patient suffering from a specific condition. The extracted feature from the input nail image is compared to the training data set. We discovered in this experiment that the color features of nail images are accurately matched with training set data.

ADVANTAGES

a. Malnutrition detection of any patient.

b. Before doctor check-up system given health problem properly

c. We check nails as well as skin problem

V. ACKNOWLEDGEMENT

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VI. CONCLUSION

In the presented system, the system analyses the human nail and provides a potential sickness for the person and a healthy case. In this case, the nail color (average RGB) value is used as a nail attribute for disease prediction. This model produces more accurate findings than the human eye in subjectivity and resolution power. Using a machine learning technique could provide more accurate results for recognizing human health conditions.

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