Analysis of Malnutrition in Children's Using Machine Learning

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ABSTRACT

In this project we are elaborating concept of disease detection of human body using nail image of human fingers and analyzing data from the image of basic of nail color. In this project the procedure of disease detection is as follows: The input to the system is a person nail image. The system will process an image of nail and extract feature of nail which is used for disease diagnosis. Here, first training data is prepared using Machine Learning from nail image of patient of specific disease. A feature extracted from input nail image is compared with training data set. In this project we found that color feature of nail image are correctly matched with training set data.

Keywords: Machine Learning, Malnutrition, Disease Detection.

ARTICLE INFO

I. INTRODUCTION

Approximately Malnutrition is a complex topic that draws the attention of the world and many researchers. Nutrition is vital for the health at all ages. The Health and nutritional status of children is one of the benchmarks that can indicates the nutritional condition of the wider community, because the pattern of parenting in many communities more priority to toddler. Malnutrition does not occur suddenly, but begins with insufficient weight gain. Changes in toddler weight within a certain time are an early indication of child nutritional circumstances. In the six-month period, infants who did not gain weight 2 times, were at risk of malnutrition 12.6 times than those with regular weight gain. Based on this, the weight change information can be the parameter to mapping the potential malnutrition problems. Thus, information of area with potential malnutrition is needed as input for government and public policy makers to prevent malnutrition and make a nutritional intervention.

The desired paper is organized as follows. The problem statement and existing system in Section 2; System motivation is presented in Section 3; literature survey in Section 4; Proposed model in Section 5; and concludes the paper.

I. PROBLEM STATEMENT

Malnutrition is one of the largest public health problems in developing countries. India contributes 1/3rd of total malnourished children in the world, with prevalence as high as 29.4%.

The purpose of this study was to assess the association of malnutrition with scholastic performance among 8–12 year children data to analysis the health records. This cross sectional study was done among 8–12 year children, with sample children photos with text input data, taking the prevalence as 50%, precision as 10%.

II. MOTIVATION AND OBJECTIVE

Motivation:
Thus our main motivation is to find the solution over an it. Where, our system will show the dashboard representation where we can see all the variation in increasing and decreasing order.

Detection of malnourished people is main task of our system.

The proposed scheme should be efficient and the system will be scalable. Through this research it is highlighted that e-government initiative has been expanded to some extent, there are lack of health related projects.

Objectives:

The main objective of this system to detect malnutrition's without doctor as an early stage and treatment is taken.

To minimize the malnutrition's children ratio before different health issues.

To reduce the manual process and automation implemented with accurate result

III. LITERATURE SURVEY

[1] Cynthia Hayat,BarensAbian, "The Modeling of Artificial Neural Network of Early Diagnosis for Malnutrition with Backpropagation Method", 2018, 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] BambangLareno, LilianaSwastina, HusnulMaadJunaidi, "IT Application to Mapping The Potential of Malnutrition Problems", 2018, 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. The result, the cross-platform information model developed is a web-based core system, with a mobile application-based support system.

[3] AnutoshMaitra, RambhauEknath Rote, NatarajKuntagod, "Managing Child Malnutrition via Digital Enablement: Insights from a Field Trial", 2017, 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] Sri Winiarti, Sri Kusumadewi, IzzatiMuhimmah, Herman Yuliansyah, "Determining The Nutrition of Patient Based on FoodPackaging Product Using Fuzzy C Means Algorithm", 2017, the result of the decision will give 3 clusters on nutritional status is good nutrition, malnutrition and better nutrition. Mobile apps are used as a reminder of the nutritional value or ingredients contained in the packaging of food products while consuming food. The result of system testing for application of FCM algorithm in this mobile application obtained validation of 80%.
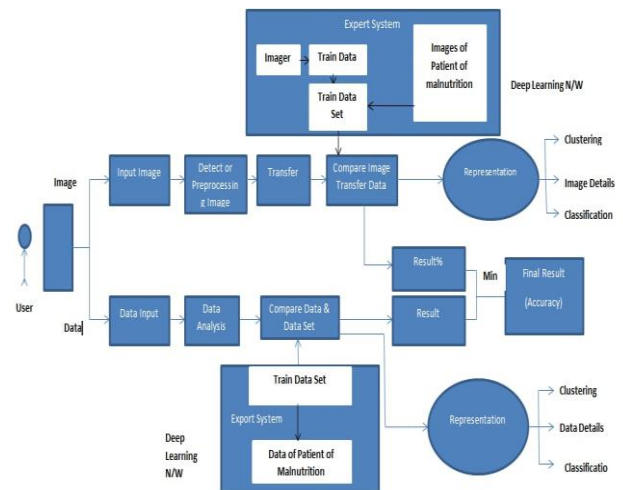
IV. PROPOSED SYSTEM

Fig 1. Block diagram

The main application of this system is to government to minimize malnutrition percentage.

Patient module:

Upload malnutrition image in this module by patient to check the diseases. Here patient will get the Patient health is critical or not menace disease without any doctor suggestion.

Admin module:

Here admin train the image dataset based on medical related backend for analysis and comparison of upcoming patient images.

Processing module:

Once get the image from patient then proposed algorithm apply the detection process on that image to find out the malnutrition patient or not.

Mathematical Model:

Input Set:

The malnutrition child images and text input. Text input is also through user. So the set of inputs will be,

I1 = {predefined command, fixed pattern sentential command, random sentences as command}

I2 = {text, image, remote text} Thus,

I = I1 U I2

Input I = {all sentences in English via text, all photos in image format, remote text input}

Output Set:

The output for the specified inputs above will be response determined by the system according to the input given and the database containing all the necessary inputs and their respective outputs.

O1 = {malnutrition accuracy, display, text}

O2 = {GUI, application response}

Thus, O = O1 U O2

Output O = {Response for corresponding text input and image input, Response for corresponding input via GUI, application response}

V. CONCLUSION

In presented system, system analyzes the human nail and gives probable disease for person including healthy case. Here, for disease prediction nail color (average RGB) value used as a nail feature. This model gives more accurate results than human eye like subjectivity and resolution power. This may give more accurate result for identifying human health condition using machine learning algorithm.

VI. ACKNOWLEDGEMENT

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[1] Cynthia Hayat, BarensAbian, "The Modeling of Artificial Neural Network of Early Diagnosis for Malnutrition with Backpropagation Method", 2018.

[2] BambangLareno, LilianaSwastina, HusnulMaadJunaidi, "IT Application to Mapping The Potential of Malnutrition Problems, 2018.

[3] AnutoshMaitra, RambhauEknath Rote, NatarajKuntagod, "Managing Child Malnutrition via Digital Enablement: Insights from a Field Trial", 2017

[4] Sri Winiarti, Sri Kusumadewi, IzzatiMuhimmah, Herman Yuliansyah, "Determining The Nutrition of Patient Based on Food Packaging Product Using Fuzzy C Means Algorithm", 2017.