International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
Volume: 06 Issue: 12 | Dec 2019 www.irjet.net p-ISSN: 2395-0072

Detect Malnutrition in Underage Children by using TensorFlow Algorithm of Artificial Intelligence

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

Key Words: Machine Learning, Malnutrition, Disease Detection, Tensorflow, Data Analysis.

1. INTRODUCTION

Malnutrition is a complex topic that draws the attention of the world and many researchers. Nutrition is vital for the health of all ages. The Health and nutritional status of children is one of the benchmarks that can indicate the nutritional condition of the wider community because of the pattern of parenting in many communities more priority to toddlers. 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 infants who did not gain weight 2 times, they 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 for mapping the potential malnutrition problems. Thus, information of area with potential malnutrition is needed as input for government and public policymakers to prevent malnutrition and make a nutritional intervention.

2. 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–to 12-year children data to analyze 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%.

3. MOTIVATION AND OBJECTIVE

Motivation:

Thus our main motivation is to find the solution over 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 the main task of our system.

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

Objectives:

The main objective of this system to detect malnutrition without a 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.

4. ALGORITHM

TensorFlow algorithm:

TensorFlow is an open-source machine learning framework for all developers. It is used for implementing machine learning and deep learning applications. To develop and research fascinating ideas on artificial intelligence, the Google team created TensorFlow. TensorFlow is designed in Python programming language, hence it is considered an easy to understand framework.

It includes a feature that defines, optimizes and calculates mathematical expressions easily with the help of multi-dimensional arrays called tensors. Also, it has programming support for deep neural networks and machine learning techniques, also a high scalable feature of computation with various data sets.

5. PROPOSED SYSTEM

We are making a system to detect malnutrition in underage children using image processing and data analysis. So this system eliminates the need of a doctor every time to determine the malnutrition in the subject. In many parts of the world, due to poverty, many people cannot afford every time to go to the doctor and therefore, in this case, the system that we are designing will be very much helpful for such people. The user is the parents of small children.

In this system malnutrition, the dataset takes the input from the user module and stores the data into the database. This data is very important for the decision making of whether the subject is affecting from malnutrition or not. It also consists of the training dataset which is then given to the data preprocessing modules.

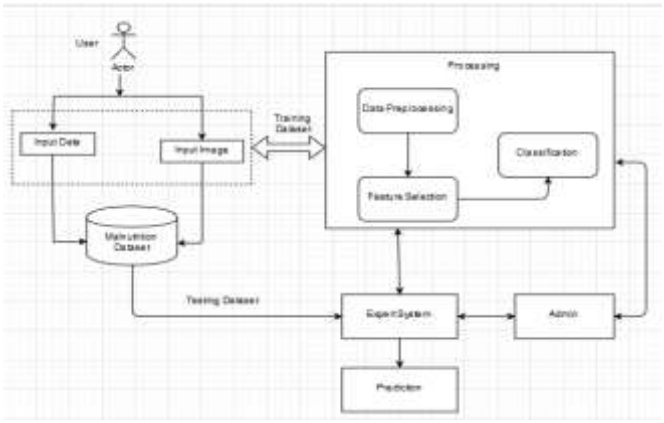

Fig -1: Block Diagram

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

User module:

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

Admin module:

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

Processing module:

Once you get the image from the patient then the proposed algorithm applies 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 the 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=I1UI2

The 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}

6. CONCLUSION

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

ACKNOWLEDGEMENT

I wish to express my profound thanks to all who helped us directly or indirectly in making this paper. Finally, I wish to thank all our friends and well-wishers who supported us in completing this paper successfully I am especially grateful to our guide **Prof. Chaitanya Mankar** for him time to time, very much needed, valuable guidance. Without the full support and cheerful encouragement of my guide, the paper would not have been completed on time.

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