

Proposed Title 1:

Malnutrition Detection and Diet Recommendation System through Artificial Intelligence

Project Description:

Poverty has been one of the leading problems in the Philippines, and during the pandemic, it even rose to a total of 20 million or 18.1% of the population in reference to the 2018 data which only had 16.7%. This number has exceeded the government's target, 15.5% to 17.5%, and implies an alarming circumstance for all Filipinos, and one of its aftermaths is malnutrition. The usual way to detect malnutrition is to have a worker to screen and conduct physical examinations to the patient to identify the state of the body, such as weight, height, and body mass index (BMI). However, these procedures only convey the proportionality of the body weight to the height, there is little to no way of knowing the necessary nutrient deficiencies of the patient. Aside from this, the inability to diagnose malnutrition in children using standard methods by using a naked eye is one of the main challenges. Additionally, some volunteers or workers are unskilled and inefficient in accessing people leading to inaccurate data. To address the matter, this topic proposal aims to help with the detection of malnourishment in Filipinos and recommend the suitable and the variety of food items a person can have through the use of artificial intelligence (A.I). The main role of AI in the proposed system is to check, estimate, and calculate the body shape, height, weight, and distribution of fats of the patient through images. An application will be created that can directly capture the three-dimensional body of a person. The age of a person was also considered for precise evaluation. After this, the data would be uploaded and processed to the cloud, returning the condition of the patient, categorizing if normal, undernutrition, or overweight. These data loaded onto the cloud will then be used for diet recommendation. During the diet recommendation, the BMR (Basal Metabolic Rate) will be calculated. BMR is the amount of calories someone expends while his body carries out its fundamental life-sustaining functions. The BMR is related to height, weight, and age of a person. Based on this, the calories are estimated and analyzed. The system generates a recommended diet plan in accordance with the patient's results and needs, which includes the food to be taken by a person per day.

Proposed Title 2:

3D Modeling and Forecasting System for Urban Planning and Management through Artificial Intelligence

Project Description:

According to Palafox, the population of the Philippines will rise to 148 million in 2050, and he emphasized the need of building 100 cities by that time, or else, congestion of cities would occur. Due to the integrated affinity of Filipinos for colonial standards, Palafox's suggestion is quite difficult to execute because the Philippines have been following the wrong model in urbanization planning for the past decades. Some exhibitions of this claim are illustrated in the locations of mass transit stations, where it is erected near the exclusive gated communities and huge military camps, in which the residents of these places don't find public transportation necessary. Moreover, the inability of roads and parking spaces to keep up with the increasing numbers of vehicles in cities, and infrastructures that have poor mitigation planning, thus, resulting in vulnerability to natural disasters and calamities. To address the matter, this topic proposal aims to create a 3D modeling and forecasting system to help with the development of urban planning and management through the use of Artificial intelligence. The proposed system will generate a 3D model of the establishment that the user wants to build, in which the system will bring forth some options to indicate where the user intends to place their establishment, or if they are allowing the system to decide for the most viable location instead. After this, a simulation will run in which the system illustrates the condition of the building in that particular place, returning feedback of routes to be taken or created, and will measure the safety, security, and stability of the establishment in that location, calculating the risks of possible dangers and accidents, either by natural or artificial disasters. Additionally, the system will also create a suggestion list for the materials and estimate overall expenses of the establishment that the user subjects to the system. The acquisition of data fed to the A.I can either be done through drone or satellite surveillance systems.