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Department of Electronics and Communication Engineering
IBM NALAIYA THIRAN
LITERATURE SURVEY

TITLE : AI-powered Nutrition Analyzer
for Fitness Enthusiasts

DOMAIN NAME : Artificial Intelligence

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ABSTRACT :

Food is an essential part of the daily life. Men can't live without food. But unfortunately due to satisfy the world's needs farming become commercialized and nutrients in the food becomes too low. Measuring the quality of food becomes the difficult task. So, we came with a food nutrition analyzer, in which we can measure the quality of food, with our tool instantly. We use Deep Learning and techniques of convolutional neural network to develop the applications which recognizes the food and provides the nutrients information about the food to the public.

INTRODUCTION :

Food patterns and diet are important factors to improve the lifestyle by preventing diseases. The food industry comprises complexities, and the journey for innovation in the food industry is long, from idea generation to commercialization. It is reported that diet significantly influences the evolution of CNCD (chronic non-communicable diseases), including, cardiovascular diseases, depression, and obesity. Further, product ideas and advanced packaging demand thorough data collection, testing, and certification before approaching consumers. If this work is performed manually, it brings high possibilities of errors that ultimately lead to time and money wastage with no beneficial outcomes. Here AI in nutrition plays a significant role in offering the extraordinary potential for preventing diseases and better treatment methods.

LITERATURE SURVEY :

World Obesity reported that about 2.7 billion adults get obese, and about 177 million are expected to get influenced by 2025. The advancement in technology has changed the strategy to work on dietary plans properly. Several companies are passionate about exploring ML and AI potentials to bring remarkable nutrition and diet improvement innovations. Artificial intelligence and machine learning have become primary components of daily workouts. According to technologists, AI empowers fitness apps by increasing engagement dramatically. Plus, AI-powered apps save fitness enthusiasts' money as AI trainers are less expensive than human experts and easy to follow as they don't have to go out to join a gym. AI fitness software makes fitness apps more compelling and engaging.

Artificial intelligence made it possible to analyze personal health metrics and give birth to many ongoing projects in the same field. For instance, smartphone nutritional applications are developed that use deep learning to analyze photos of plates for streamlining food logging processing without human-based errors. However, a complete dataset must comprise major factors like sleep patterns, activity levels, microbiome functioning, and medication consumption. Advanced algorithms help achieve this goal by tracking important health metrics for personalized AI diet chart plan development. In the coming five to ten years, it is expected that AI and ML techniques will grow further in the nutrition and fitness department.

- **Food Science:** AI automates recipe building by performing

in-depth market analysis and ensures safety measures.

- ***Distribution and Supply Chain:*** AI in nutrition helps via predictive analytics in minimizing wastes, saving costs, visual pattern recognition, agile, and accurate forecasting.
- ***Customer Experience:*** Artificial intelligence monitors customer traffic and engagement and learns from insights to promote self-service and sales systems.
- ***Manufacturing:*** It involves reducing risk and predictive maintenance with IoT (internet of things) to create better-connected businesses.

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