

# **MSME PROPOSAL FORMAT**

## **Section-A**

1. HI/BI State: Andhra Pradesh
2. HI/BI Centre: Lakireddy Bali Reddy College of Engineering
3. Idea Theme: Healthcare & Life Sciences
4. Title of proposed Idea/Innovation:

Unveiling Nutrient Deficiencies:Image Processing and Neural Networks for Vitamin Assessment

5. Briefly explain the newness/uniqueness of the Innovation:

The "Unveiling Nutrient Deficiencies :Image Processing and Neural Networks for Vitamin Assessment" project is unique in its integration of image processing and neural networks for non-invasive detection. It offers personalized recommendations, scalability, long-term monitoring, and combines health education with detection, setting it apart as an innovative approach to addressing vitamin deficiencies.

6. Specify the potential areas of application in Industry/Market in brief:

The "Unveiling Nutrient Deficiencies: Image Processing and Neural Networks for Vitamin Assessment" project has potential applications in healthcare, nutrition planning, food industry, wellness apps, public health programs, and academic research.

7. Briefly provide the market potential of Idea/Innovation:

The "Unveiling Nutrient Deficiencies: Image Processing and Neural Networks for Vitamin Assessment" innovation has strong market potential driven by health consciousness, preventive healthcare trends, personalization demand, industry adoption, collaborations, digital health applications, and government initiatives.

## **Section-B**

1. Faculty/Student: Dirisala Chaitanya Nandini
2. Principal Investigator:  
Sex (M/F):Female  
Designation: Student  
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3. Co-Investigator: Gade Lakshmi Prasanna  
Sex (M/F):Female  
Designation: Student

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Date of Birth: 31-Jan-2003

4. Project summary (Maximum 500 words):

The proposed project aims to develop an application that utilizes image processing and neural networks to detect vitamin deficiencies in users. The application requires users to provide images of their eyes, nails, skin, and feet, which will be analysed to identify potential deficiencies.

By employing image processing techniques, such as computer vision algorithms, the application can extract relevant features from the provided images. These features may include colour variations, texture patterns, and specific characteristics associated with different deficiencies.

Neural networks, particularly deep learning models, can be trained to recognize patterns and make predictions based on the extracted features. In this case, the neural network would learn to associate certain visual indicators in the eye, nail, skin, and feet images with specific vitamin deficiencies. Through extensive training on labelled data, the model can achieve higher accuracy in identifying deficiencies.

It is important to note that this project relies on the assumption that certain visual markers are indicative of vitamin deficiencies. This assumption would need to be supported by scientific research and medical expertise to ensure the application's accuracy and reliability.

Overall, this project combines the fields of image processing and neural networks to develop an application that analysis user-provided images of eyes, nails, skin, and feet to detect potential vitamin deficiencies.

5. Origin of the proposal

The proposal for the "Unveiling Nutrient Deficiencies :Image Processing and Neural Networks for Vitamin Assessment" project originates from research on vitamin deficiencies, advancements in image processing and neural networks, data availability, the need for accessibility, collaborative efforts, and the potential social impact and funding opportunities.

6. Objectives

The objective is to develop an automated and user-friendly application that utilizes image processing and neural networks to detect potential vitamin deficiencies. By analysing images of the eyes, nails, skin, and feet, the application aims to extract relevant features and identify visual markers associated with deficiencies. The goal is to enable early detection, provide a non-invasive screening method, ensure accuracy and reliability, and promote awareness of nutritional health.

7. Importance of the proposed project in the context of present scenario

This project aims to assist economically disadvantaged individuals in identifying and addressing their vitamin deficiencies. By providing free guidance on suitable foods, it promotes health and well-being, improves accessibility to essential information, empowers individuals through education, adopts a preventive healthcare approach, and contributes to reducing health disparities. Overall, it works towards creating a more equitable and healthier society.

8. Preliminary work carried out in line with proposed idea.

On the basis of our experience and the present situations we came to understand that vitamin deficiency detection costs around 3000 to 4000 rupees and needs pierce their fingers or requires their blood samples. So we as a team decided to develop an application to help the poor and middle class people to regularly check their vitamin deficiency to reduce the dangerous health syndromes without any money.

9. Estimated Budget in Rs.: (Student will get full support from MSME, Faculty 50%)

Sl.	Items	Project Cost (Own share in Lakh)	MSME support sought (in Lakh)
i.	Outsourcing charges for R&D/Design Engg./Consultancy/Testing/Expert cost	2.00L	
ii.	Raw materials/consumables/spares	1.50L	
iii.	Fabrication/synthesis charges of working model or process	3.00L	
iv.	Business travel and event participation Fees (Ceiling of 10% of approved project cost)	1.00L	
v.	Patent Filing Cost (PCT- Ceiling of 10% of approved project cost)	2.50L	
vi.	Contingency (Ceiling of 10% of approved project cost)	3.00L	
<b>Total in Lakh</b>		<b>13.00L</b>	

10. Key Parameters pertaining to Proposed Idea:

The main objective of this application is to provide a report to the user which contains the basic vitamin intake suggestion and their estimated vitamin deficiency. And this report also contains the suggestions for the food intake to treat their vitamin deficiency as possible as they can without making it complex.

11. Any other relevant matter in support of the proposed idea.

The proposed "Unveiling Nutrient Deficiencies: Image Processing and Neural Networks for Vitamin Assessment" project is supported by several key factors. These include timely detection, non-invasive approach, scalability and reach, personalized recommendations, long-term monitoring, health education opportunities, and collaboration with healthcare providers.

SI.	Item	Response
i.	Are there mentors/ guide in your project from Industry/Institute? If yes, give the contact details including mob. No. email ID etc.	Dr S Jayaprada CSE Dept, LBRCE
ii.	Information on patents filed/granted (if any)	Nil
iii.	Any award or recognition related to the innovation.	Nil
iv.	Details of competitors of the product going to be developed, if any.	Business Sectors