Temporary Registration No. : TPN / 57443

सत्यमेव जयते
Ministry of Science & Technology
Government of India

Project Proposal On

"DESIGN DEVELOPMENT OF INTELLIGENT DEVICE TO DETECT PESTICIDES ON FRUITS/VEGETABLES USING DEEP LEARNING MECHANISM"

Submitted to

Division : Technology Development Transfer

Programme or Scheme : Device Development Programme

Submitted by

Project Investigator:

Dr. Y VIJAY BHASKAR REDDY

LAKIREDDY BALIREDDY COLLEGE OF ENGINEERING-Mylavaram

Part 1 : General Information

General Information:

1.Name of the Institute/University/Organisation submitting the Project Proposal :

LAKIREDDY BALIREDDY COLLEGE
OF ENGINEERING

2. State	Andhra Pradesh
3. Principal Investigrator Name:	Dr. Y VIJAY BHASKAR REDDY
4. Category:	General
5. Type of the Institue :	Academic Institutions (Private)
6. Project Title :	DESIGN DEVELOPMENT OF INTELLIGENT DEVICE TO DETECT PESTICIDES ON FRUITS/VEGETABLES USING DEEP LEARNING MECHANISM
7. Division :	Technology Development Transfer
8. Programme Or Scheme :	Device Development Programme
9. Academic Area :	Agriculture Science, Food and Nutrition, Mathematical Science, Electronics,Computers and Communication Engineering,
10. Application Area :	Food and agriculture, Health,
11. Goverment National Initiative :	Make in India, Startup India,
12. Type of Proposal :	Proposal Against Call
13. Project Duration :	3 Years and 0 Months
14. Proposal Submit Date :	12/11/2020
15. Project Keywords :	DEEP LEARNING, STATISTICAL ANALYSIS, PESTICIDES, DEVICE

16. Project Summary :

OBJECTIVES
1. To collect high-quality images of vegetables and fruits, using an HD/Infra-Red camera.
2. To extract diversified characteristics/patterns from the collected images.
3. To minutely identify pesticides and chemical substances on fruits and vegetables.
4. To develop a Deep Learning approach to classifying them as good, average, or damaged.
5. To design a product that automatically dumps the classified vegetables and fruits into separate bins. Hence, the proposed device can enhance processing capability and save time by automating this process and get adopted by the food processing and Agro industries.
METHODOLOGY
The main objective of this mechanism is to classify vegetables/fruits as best, average, and damaged. Here, the focus is not only on the quality of such stuff but also on identifying traces of pesticides on fruits and vegetables. The identification of chemical substances on the fruits has always been a challenging problem. In recent times, farmers are seen applying many pesticides to save the fruits/vegetables from insects, pests, and unknown viruses and fungus attacks. From the various literature surveys, it has been concluded that it is essential to develop an intelligent approach that can detect and recognize even the minutest traces of such pesticides and chemicals so as to make them safe and not harmful to human health. The proposed mechanism will classify food items effectively and accurately, to make them chemical-free.
The following steps are needed to be followed in the proposed approach
1. High-quality training images are collected as input and get features of each vegetable/fruit.
2. Then, the machine learning application extracts features of fruit/vegetable and forwards to the sensor.
3. The fruits and vegetables are placed in a container and are passed through a conveyer belt the sensor will then extract features of each image/fruit and compare it with application features.
4. For every feature, a threshold value is assigned. After extracting each feature, it will be compared with the threshold value.
5. Every fruit/vegetable is segregated based on the Threshold value.
The following Modules are suggested
Module-1 Image capturing
Module-2 Segmentation and Statistical Analysis
Module-3 Design and develop Deep Learning Methodology
Module-4 Integration and Testing

Image capturing At this stage, a large volume of high-quality images will be collected to acquire background knowledge by using an HD/infrared camera. These images are processed and stored in a high-end server.

Segmentation and statistical Analysis In this module, we will implement a segmentation technique that identifies the target object from an image. The raw images will be converted into patterns. We will use statistical tools to measure the relevance and importance of the characteristics of images.

Design and Develop Deep Learning Methodology In this module, we will develop a deep learning model that can classify fruits/vegetables. The features will be extracted directly from the color images, which will reduce the processing time by applying the feature reduction technique.

Integration and Testing We will develop various deep learning models and evaluated and test the generated patterns/data. Based on the outcome of the modules, the system can be integrated in real-time and its performance can be measured based on the accuracy of the model.
OUTCOME
The prototype will classify fruits/vegetables accurately as good/average/damaged and detect even the minutest traces of chemicals and make them chemical-free and safe for consumption.
KEY QUESTIONS or RESEARCH QUESTIONS TO BE ADDRESSED
1 Is it possible to develop a product that can detect Food adulteration
2. Is there any way to develop an algorithm that can help achieve the above
3. Is it possible to detect the minutest chemical substances on the fruits/vegetables

Part 2: Particulars of Investigators

Principal Investigator:

1. Name:	Dr. Y VIJAY BHASKAR REDDY
Gender:	Male
Date of Birth:	01/04/1978
Designation :	ASSOCIATE PROOF

Department:	CSE
Institute/University:	LAKIREDDY BALIREDDY COLLEGE OF ENGINEERING
State:	Andhra Pradesh
District:	Krishna
City/Place:	Mylavaram
Address:	Lakireddy Balireddy College of Engineering, LB reddy nagar,Mylavaram-521230,Krishna District.Andhra Pradesh. India.
Pin:	521230
Communication Email:	yaramala.vijay@gmail.com
Alternate Email:	yvbreddy@lbrce.ac.in
Mobile:	9848249504
Phone:	08659222933
Fax:	
Category:	General

Co-Investigator:

1. Name:	Dr. JAGAN MOHAN REDDY D
Gender:	Male
Date of Birth:	05/08/1983
Designation :	ASSOCIATE PROFESSOR
Department:	CSE
Institute/University:	LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING
State:	Andhra Pradesh
District:	Krishna
City/Place:	MYLAVARAM

Address:	MYLAVARM
Pin:	521230
Communication Email:	jagan.reddy507@gmail.com
Alternate Email:	
Mobile:	9160738986
Phone:	08659222933
Fax:	
Category:	General

Part 3: Suggested Refrees

Suggested Refrees:

1. Name:	D Manjaiah
Mobile:	944944638
Designation :	Chairman
Email:	manju@mangaloreuniversity.ac.in
Institute/University:	MANGALORE UNIVERSITY
Address:	Mangalore University, Mangalagangothri, Karnataka
Academic Area:	Electronics,Computers and Communication Engineering,
Application Area:	Digital technologies,
State:	Karnataka
District:	Dakshina Kannada
City:	Mangalore
Address:	Dr. Manjaiah D.H Professor & Chairman, Mangalore University Mangalagangotri - 574 199 Karnataka State India
Pin Code:	574199

2. Name:	R.B.V. Subramaanyam
Mobile:	9491346969
Designation :	Professor
Email:	rbvs66@nitw.ac.in
Institute/University:	NIT WARANGIL
Address:	National Institute of Technology Warangal
Academic Area:	Electronics,Computers and Communication Engineering,
Application Area:	Cognitive Sciences,
State:	Telangana
District:	Warangal Rural
City:	warangal
Address:	Dr. R.B.V. Subramaanyam Professor, Department of CSE , National Institute of Technology, Warangal - 506004, Telangana, INDIA.
Pin Code:	506004

Part 4: Financial Details

Financial Details:

A. Non - Recurring

A1. Non-Recurring (e.g. equipments, accessories etc.)

S.	Equipments	Qty.	Justification	1 Year	Total
1 .	D Link 1 Giga 24 port Switches	1		6500	6500
2 .	DELL SERVER	1	HIGH PERFORM,ANCE COMPUTING	900000	900000
3 .	DESKTOP SYSTEMS	2		126000	126000
4 .	LAPTOP	2		120000	120000
5 .	MACHINE VISION INFRA RED CAMERA	2		400000	400000
			Total	**1552500**	**1552500**

A2. Others Non-Recurring : NA

B. Recurring

B.1 Project Staff

S.	Project Staff	No.	Justification	1 Year	2 Year	3 Year	Total

1 .	JRF	1	RECRUIT M.TECH GRADUATE FROM PREMIER INSTITUTE	240000	240000	240000	720000
2 .	JRF	1	RECRUIT M.TECH GRADUATES FROM PREMIER INSTITUES	0	0	0	0
3 .	Lab attendant	1	TECHNICAL SUPPORT	36000	36000	36000	108000
			Total	**276000**	**276000**	**276000**	**828000**

B.2 Consumable

S.	Items	Qty.	Justification	1 Year	2 Year	3 Year	Total
1 .	Stationary, network cables, power supply and conveyer belt	1	for the project setup and installation process	30000	30000	30000	90000
			Total	**30000**	**30000**	**30000**	**90000**

B.3 Travel

S.	Description	Justification	1 Year	2 Year	3 Year	Total
1 .	ATTENDING CONFERNCES,REVIEW COMITEE VISITS		100000	100000	0	200000
2 .	ATTENDING CONFERNCES, REVIEW COMITEE VISITS and organize a workshop	to showcase our research work to stakeholders	0	0	300000	300000
		Total	**100000**	**100000**	**300000**	**500000**

B.4 Contingency

S.	Description	Justification	1 Year	2 Year	3 Year	Total
1 .	REGISTRAION FEES,PRINTER,STATIONERY		50000	50000	50000	150000
		Total	**50000**	**50000**	**50000**	**150000**

B.5 Any Other Head : NA

B.6 Overhead

S.	Description	Justification	1 Year	2 Year	3 Year	Total
1 .	UTILIZATION OF INSTITUE RESOURCE		200000	200000	200000	600000
		Total	**200000**	**200000**	**200000**	**600000**

Budget Head Summary in (INR)

Budget Head	Year-1	Year-2	Year-3	Total
1- Non-Recurring				
Equipment	1552500	0	0	**1552500**
2- Recurring				
Project Staff	276000	276000	276000	**828000**
Travel	100000	100000	300000	**500000**
Overhead	200000	200000	200000	**600000**
Contingency	50000	50000	50000	**150000**
Consumable	30000	30000	30000	**90000**
Total	**2208500**	**656000**	**856000**	**3720500**

PFMS Details:

PFMS Unique Code Available: Yes

PFMS Unique Code : APKA00008815

Part 5: Current Ongoing Project

Current Ongoing Project: NA

List of Uploaded Documents:-

1. Complete Project proposal
2. Biodata
3. Certificate from PI
4. Conflict of interest
5. Endorsement from head of Institute
6. Quotation for Equipments

PROJECT SUMMARY

Project Title: Design & Development of Intelligent Device to Detect Pesticides on Fruits/Vegetables Using Deep Learning Mechanism.

Name of Device proposed to develop with TRL level:

Use of proposed device and Potential User (One line): Any organization such as big Basket, Reliance and Heritage.

PI: Dr. Y. Vijay Bhaskar Reddy **Age:** 42

Contact No. Mobile and Office: 9848249504, 08659-222933

Email ID: yvbreddy@lbrce.ac.in

Co- PI's: Dr. D. Jagan Mohan Reddy

Total Cost: 3630500

Duration: 3 years

Manpower: 1 (JRF)

Equipment proposed: Machine vision camera; server; laptops; desktops

Industry Partner (if any): can be negotiated later

Industry' financial Contribution (if any): NA

Objectives:

1. To collect high-quality images of vegetables and fruits, using an HD/Infra-Red camera.
2. To extract diversified characteristics/patterns from the collected images.
3. To minutely identify pesticides and chemical substances on fruits and vegetables.
4. To develop a Deep Learning approach to classifying them as good, average, or damaged.
5. To design a product that automatically dumps the classified vegetables and fruits into separate bins. Hence, the proposed device can enhance processing capability and save time by automating this process and get adopted by the food processing and Agro industries.

Methodology:

The main objective of this mechanism is to classify vegetables/fruits as best, average, and damaged. Here, the focus is not only on the quality of such stuff, but also on identifying traces of pesticides on fruits and vegetables. The identification of chemical substances on the fruits has always been a challenging problem. In recent times, farmers are seen applying many

pesticides to save the fruits/vegetables from insects, pests and unknown viruses and fungus attacks. From the various literature surveys, it has been concluded that it is essential to develop an intelligent approach that can detect and recognize even minutest traces of such pesticides and chemicals so as to making them safe and not harmful to human health. The proposed mechanism will classify food items effectively and accurately, to make them chemical-free.

The following steps are needed to be followed in the proposed approach:

1. High-quality training images are collected as input and get features of each vegetable/fruit.
2. Then, the machine learning application extracts features of fruit/vegetable and forwards to the sensor.
3. The fruits and vegetables are placed in a container and are passed through a conveyer belt; the sensor will then extract features of each image/fruit and compare with application features.
4. For every feature, a threshold value is assigned. After extracting each feature, it will be compared with the threshold value.
5. Every fruit/vegetable is segregated based on the Threshold value.

The following Modules are suggested:

- Module-1 Image capturing
- Module-2 Segmentation and Statistical Analysis
- Module-3 Design and develop Deep Learning Methodology
- Module-4 Integration and Testing

Image capturing: At this stage, a large volume of high-quality images will be collected to acquire background knowledge by using an HD/infrared camera. These images are processed and stored in a high-end server.

Segmentation and statistical Analysis: In this module, we will implement a segmentation technique that identifies the target object from an image. The raw images will be converted into patterns. We will use statistical tools to measure the relevance and importance of the characteristics of images.

Design and Develop Deep Learning Methodology: In this module, we will develop a deep learning model that can classify fruits/vegetables. The features will be extracted directly from

the color images, which will reduce the processing time by applying feature reduction technique.

Integration and Testing: We will develop various deep learning models and evaluated and test the generated patterns/data. Based on the outcome of the modules, the system can be integrated in real-time and its performance can be measured based on the accuracy of the model.

OUTCOME

The prototype will classify fruits/vegetables accurately as good/average/damaged and detect even the minutest traces of chemicals and make them chemical-free and safe for consumption.

KEY QUESTIONS (or) RESEARCH QUESTIONS TO BE ADDRESSED

1 Is it possible to develop a product that can detect Food adulteration?

2. Is there any way to develop an algorithm that can help achieve the above?

3. Is it possible to detect minutest chemical substances on the fruits/vegetables?

Deliverables:

The prototype will classify fruits/vegetables accurately as good/average/damaged and detect even the minutest traces of chemicals and make them chemical-free and safe for consumption.

Budget Details:

Sr. No.	**Items**	**Budget(in Lakhs)**			
		1st Year	**2nd Year**	**3rd Year**	**Total**
1.	Salaries/ Fellowships (Name & No.)	2,76,000	2,76000	2,76,000	8,28,000
2.	Equipments	1552500	----	-----	1552500
3.	Consumables	30,000	30,000	30,000	90,000
4.	Travel	1,00000	1,00000	3,00000	5,00000
5.	Contingencies	50,000	50,0000	50,0000	1,50,000
6.	Overhead Expenses*	2,00000	2,00000	2,00000	6,00000
	Total	**22,08,500**	**6,56,000**	**8,56,000**	**37.20,500**

Any other relevant information including Novelty /Details of Proof of Concept/Prototype developed by Investigator/Team:- (maximum 150 words):-

FORMAT FOR SUBMISSION OF PROJECT PROPOSALS

PART – A

Project Title: : Design & Development of Intelligent Device to Detect Pesticides on Fruits/Vegetables Using Deep Learning Mechanism

Broad Area :

Analytical/ Testing/Measuring/ Monitoring devices/instruments **( )**

Food Processing/ adulteration detection devices **(√)**

Environmental monitoring devices/ Early warning Systems **( )**

Development of sensor based devices for disaster risk reduction and management (related to Natural, Climate, Agriculture, Chemical, biological etc. **( )**

Drone/ Anti drone related devices development for useful applications. Industrial Instruments **( )**

Other area (Please specify) **( )**

TOTAL COST OF THE PROJECT: 37,20,500

PROJECT DURATION : 3 years

INSTITUTION / ORGANIZATION: LAKI REDDY BALI REDDY COLLEGE OF ENGINEERING.

6. OTHER PARTICIPATING / INTERACTING AGENCIES:
(Please enclose their letter regarding their willingness to participate in the project)

7. PRINCIPAL INVENTIGATOR:

Name: Dr. Y. Vijay Bhaskar Reddy.
Designation: Associate Professor.
Institution: LAKI REDDY BALI REDDY COLLEGE OF ENGINEERING.
Address: Mylavaram.
Email: yaramala.vijay@gmail.com
Mobile: 9848249504

8. OTHER INVESTIGATOR (S)

Name: Dr D. Jagan Mohan Reddy
Designation: Associate Professor
Institution: LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING
Address: Mylavaram.
Email: jagan.reddy507@gmail.com
Mobile: 9160738986

9. NAME, ADDRESS, EMAIL ID AND MOBILE NUMBER OF EXPERTS WORKING IN THE SUBJECT/AREA(S): (UPTO 10)

1. Dr. R.B.V. Subramanian
   Professor, Department of CSE,
   National Institute of Technology,
   Warangal - 506004, Telangana,
   India.
2. Dr. Manjaiah D.H
   Professor & Chairman,
   Mangalore University
   Mangalagangotri - 574 199
   Karnataka State
   India

10. NAMES AND ADDRESSES OF PERSONS/ INSTITUIONS (UPTO 10) INTERSESTED IN THE OUTCOME OF THE PROJECT:

PART – B

1. OBJECTIVES OF THE PROJECT:

1. To collect high-quality images of vegetables and fruits, using an HD/Infra-Red camera.
2. To extract diversified characteristics/patterns from the collected images.
3. To minutely identify pesticides and chemical substances on fruits and vegetables.
4. To develop a Deep Learning approach to classifying them as good, average, or damaged.
5. To design a product that automatically dumps the classified vegetables and fruits into Separate bins. Hence, the proposed device can enhance processing capability and Save time by automating this process and get adopted by the food processing and Agro industries.

2. APPLICATIONS OF THE DEVICES / DEVICE / SENSOR TO BE TAKEN UP FOR DEVELOPMENT.

S. No	NAME OF THE EQIPMENT	Specifications
1.	Machine vision Infra red camera	**Sensor** CMOS **Data rate** 2 GB/sec **Resolution** 4 to 25 MP **Distance** Upto 200 feet
2.	Laptops	10th Generation Intel® Core™ i5-10210U Processor (6MB Cache, up to 4.2 GHz) Windows 10 Home Single Language, English NVIDIA® GeForce® MX250 with 2GB GDDR5 graphics memory 8GB,4Gx1 + 4G onboard, DDR4, 2666MHz 512GB M.2 PCIe NVMe Solid State Drive LCD Back Cover for Non-touch Display with Backlit Silver Keyboard - Platinum Silver
3.	Dell server	Power Edge server
4.	Desktop systems	An ultracompact desktop featuring versatile mounting options, 9th gen Intel® Core™ processors and optional Intel® vPro™ technology to empower faster productivity. An ultracompact desktop featuring versatile mounting options, 9th gen Intel® Core™ processors and optional Intel® vPro™ technology to empower faster productivity.
5.	D Link 1 Giga 24 port Switches	D Link 1 Giga 24 port Switches

3. USERS / USERS AGENCIES :

Farmers and Industry

4. ESTIMATED REQUIREMENT (NO. OF PIECE PER YEAR) OF THE PROPOSED DEVICE / SYSTEM :

(Please mention how the estimated requirement is worked out, i.e. through interaction with users; market survey etc.)

5. ESTIMATED COST OF THE DEVICE /SYSTEM AFTER DEVELOPMENT:

It depends on the capacity of the production and industry needs.

6. THE COST OF SIMILAR IMPORTED DEVICES: NA

7. PRODUCTION AGENCY / INDUSTRY : NA

8. REVIEW OF STATUS AND TECHNOLOGY TRENDS IN RESPECT OF DEVICE / INSTRUMENT TO BE TAKEN UP FOR DEVELOPMENT:

Health is wealth. Each one of us takes a lot of care of our health. Food and our life style play a vital role in protecting our health. However, the food that we need must stay natural, fresh, and free from contaminants so that we remain healthy. Unfortunately, a lot of fruits and vegetables are not produced in natural ways, and get damaged due to pest attacks, while application of pesticides makes them unhealthy. Also, the lure of higher yielding makes vendors to indiscriminately spray and apply the most dangerous, harmful pesticides and chemicals. The consumption of such food stuff causes great harm to public health. To address this serious issue, we are going to design and develop a product based on Artificial Intelligence approach. The proposed mechanism will classify fruits and vegetables into good, average and damaged based on a real time assessment of the defined quality metrics. In this approach, diversified characteristics like texture (color), shape (dimensions) are captured from fruits and vegetables and then, the Deep Learning/Machine Learning technique is implemented to classify them automatically. The results are then going to be validated in real-time. Hence, it is going to be helpful to the food processing industry and particularly to farmers to produce good quality fruits and vegetables and promote good public health.

9. TECHNICAL DETAILS:

a. Methodology:

The main objective of this mechanism is to classify vegetables/fruits as best, average, and damaged. Here, the focus is not only on the quality of such stuff, but also on identifying traces of pesticides on fruits and vegetables. The identification of chemical substances on the fruits has always been a challenging problem. In recent times, farmers are seen applying many pesticides to save the fruits/vegetables from insects, pests and unknown viruses and fungus attacks. From the various literature surveys, it has been concluded that it is essential to develop an intelligent approach that can detect and recognize even minutest traces of such pesticides and chemicals so

as to making them safe and not harmful to human health. The proposed mechanism will classify food items effectively and accurately, to make them chemical-free.

The following steps are needed to be followed in the proposed approach:

1. High-quality training images are collected as input and get features of each vegetable/fruit.
2. Then, the machine learning application extracts features of fruit/vegetable and forwards to the sensor.
3. The fruits and vegetables are placed in a container and are passed through a conveyer belt; the sensor will then extract features of each image/fruit and compare with application features.
4. For every feature, a threshold value is assigned. After extracting each feature, it will be compared with the threshold value.
5. Every fruit/vegetable is segregated based on the Threshold value.

The following Modules are suggested:

- Module-1 Image capturing
- Module-2 Segmentation and Statistical Analysis
- Module-3 Design and develop Deep Learning Methodology
- Module-4 Integration and Testing

Image capturing: At this stage, a large volume of high-quality images will be collected to acquire background knowledge by using an HD/infrared camera. These images are processed and stored in a high-end server.

Segmentation and statistical Analysis: In this module, we will implement a segmentation technique that identifies the target object from an image. The raw images will be converted into patterns. We will use statistical tools to measure the relevance and importance of the characteristics of images.

Design and Develop Deep Learning Methodology: In this module, we will develop a deep learning model that can classify fruits/vegetables. The features will be extracted directly from the color images, which will reduce the processing time by applying feature reduction technique.

Integration and Testing: We will develop various deep learning models and evaluated and test the generated patterns/data. Based on the outcome of the modules, the system can be integrated in real-time and its performance can be measured based on the accuracy of the model.

Architecture:

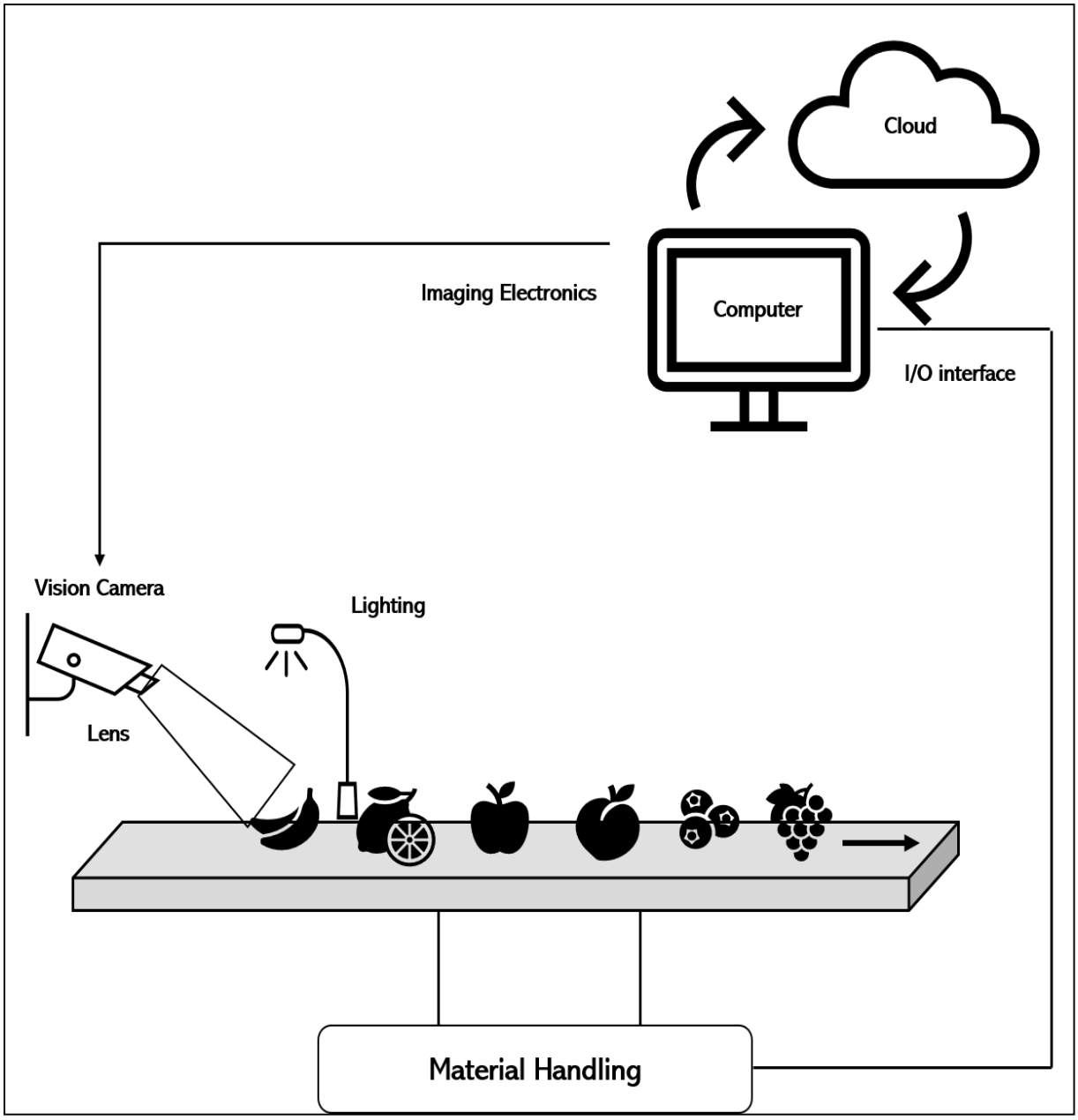


Figure: Architecture of proposed Method

The proposed method is described in figure to classify the fruits/vegetables as chemical free or damaged using Deep Learning techniques. The above architecture, we first grab the fruits in the form of infrared image and process it and display the category of the fruit. The instructions are sent from the computer to infrared camera. To increase the processing of classification, we deploy proposed method from cloud space.

10. WORK PLAN:

S. No.	Time line	Deliverables
1.	0-12 Months	Literature survey Recruitment of JRF Image capturing/data collection Segmentation and statistical Analysis
2.	12-24 Months	Design and Develop Deep Learning Methodology Training Set-Up Using Required Instruments
3.	24-36 Months	Testing of the experimental setup Documentation

Deliverables	**1st Year**		**2nd Year**		**3rd Year**	
	0-6	**7-12**	**13-18**	**19-24**	**25-31**	**32-36**
Literature survey						
Recruitment of Research Associate						
Image capturing						
Segmentation and statistical Analysis						
Design and Develop Deep Learning Methodology						
Training Set-Up Using Required Instruments						
Testing of the experimental setup						
Testing and training of Model						
Documentation						

11. FACILITIES AVAILABLE AT YOUR ORGANISATION WHICH ARE RELEVANT / USEFUL IN IMPLEMENTING THE PROJECT AND WILL BE AVAILABLE TO YOU DURING THE IMPLEMENTATION OF THE PROJECT:

A. Infrastructural facilities (Tick the appropriate box)

Item	Yes	No	NR*	Item	Yes	No	NR*
a) Workshop	√			g) Transportation	√		
b) Water & Electricity	√			h) Administrative & Secretarial support	√		
c) Standby power supply	√			i) Library facilities	√		
d) Laboratory Space & Furniture	√			j) Computational facilities	√		
e) Air Conditioned room for equipment	√			k) Any other (Please mention)	√		
f) Telecommunication							

* NR: Not Required.

B. Available equipment (including test & measuring, calibration etc.) and accessories relevant to the project:

S.No.	Name of equipment and accessories	Model and Make	Remarks
1.	POWEREDGE R740 SERVER	DELL	
2.			
3.			

NOTE: Please make sure that the aforesaid facilities and equipment will be available for the project.

C. Available manpower

S. No.	Name & Designation	Area of specialization
1.	Sri B.V. Srinivas Reddy	Network engineer
2.		
3.		

12. A. BUDGET ESTIMATES:

Sr. No.	Items	Budget			
		1st Year	2nd Year	3rd Year	Total
1.	Salaries / Wages	2,76000	2,76000	2,76000	8,28,000
2.	Equipment	1552500	0	0	1552500
3.	Consumables	30,0000	30,000	30,000	90,000
4.	Travel	1,00000	1,00000	3,00000	5,00000
5.	Contingencies	50,000	50,000	50,000	1,50,000
6.	Overhead expenses*	2,00000	2,00000	2,00000	6,00000
	Total	22,0.8,500	6,56,000	8,56,000	37,0,20,500

* For the organization of the PI towards meeting their costs for overhead expenses on the project including infra structural facilities etc.

12. B. BUDGET FOR SALARY / WAGES:
(As per OM SR/S9/Z-08/2018 dated January 30, 2019 and/or SR/S9/Z-05/2019 dated July 10, 2020)

Sr. No.	Designation	Scale of pay	Monthly emoluments	Number	1st Year	2nd Year	3rd Year	Total
1	JRF	25,000		1	3,00000	3,0000	3,00000	9,00000
2	Lab Attendant	3,000		1	36,000	36,000	36,000	1,08,000

Justification for manpower required

To design and develop the proposed device, one well qualified JRF is necessary. The JRF can be either GATE/NET or any other national exam must be cleared. For support and maintain the entire configuration of the system, one internal staff can be accompanied.

12. C BUDGET FOR EQUIPMENT:

Sr. No.	Equipment / Accessories	Make & Model	Imported / Indigenous	Estimated Cost	F.E. Component
1	Machine Vision Infra Red Cameras-2	ACRIFAB INDIA PVT LTD		4,00000	
2	LAPTOPS-2	DELL NEW INSPIRON 15 5590		120000	

3	DESKTOPS-2	DELL OPTIPLEX 7070		63,000	
4	DELL SERVER	DELL POWER EDGE		9,00000	
5	SWITCHES	DLINK 24 PORT		6,500	
TOTAL				1552500	

Justification for equipment proposed

For design and develop the entire project, we need to create testbed that can be a pro-type of the device development. The proposed mechanism needs a one rack server, to store and process the large datasets. We will collect the diversified high quality images from the camera for accurate results. We aim the quality of the classification in terms of accuracy of the classification. For data collection, we proposed machine vision camera that can be programmable in line with proposed methodology. The laptops and desktops can be used where the undergraduate and master students can work in this project remotely without disrupting the actual testbed. The remote access can be provided within the campus network, one manageable switch and rack is also necessary.

12. D BUDGET FOR CONSUMABLES MATERALS:

(Rs. Lakhs)

Sr. No.	Items	Quality	Budget			
			1st Yr	2nd Yr	3rd Yr	TOTAL
1	Stationary, Network cables, Power supply and conveyer belt	1	0.30Lacs	0.30Lacs	0.30Lacs	0.9 Lac

Justification for consumable **materials giving estimated requirement of consumable for each prototype.**

12. E BUDGET FORTRAVEL:

Sl. No.	Purpose	Budget (Rs. In lakhs)			
		1st Yr	**2nd Yr**	**3rd Yr**	**Total**
1	Attend Conference ,Review Committee Visits	1Lacs	1Lacs	-	2.0Lacs
2	DST review meetings ,organizing a workshop	1 Lacs	1 Lacs	1Lacs	3.0Lacs

Please provide estimated number of visits related to the project work and cost per visit along with justification.

13. Research projects with the investigator (s):

Please give the following details for each project: -

Sr. No.	Project Title	Duration	Date of commencement/ Completion	Status (Ongoing/ Completed)	Total Cost	Funding agency

14. Industrial R&D Project experience/ Industrial Collaborations details.

BIODATA OF PI: -

a) Name : Dr.Y.Vijay Bhaskar Reddy
b) Date of Birth :01-04-1978
c) Academic qualifications : Ph.D(CSE)
d) Areas of expertise : Data Science and Machine Learning.
e) Experience :15

Sr. No.	Position held (Designation)	Place of work	Duration	Areas of work
1	Associate Professor (CSE)	LBRCE, Mylavaram.	24th Aug 2020 to till date	Data mining
2	Associate Professor (CSE)	SPHNCE,HYD	04 th March 2020 to 23 rd Augst 2020	Data mining
3	Associate Professor (CSE)	VCE,HYD	04th Sep 2014- 28 th Feb 2020	Data mining
4	Associate professor(MCA)	LBRCE, Mylavaram.	March 2011 to August 2014	Data mining
5	Asst professor(MCA)	LBRCE, Mylavaram.	Nov 2003 to August2009	Data mining

f) Awards received, if any
Best Teacher Award at Vardhaman College of Engineering, Hyderababd.
g) Publications (Nos.) :15

Research papers:

1. A Research Paper Entitled "**New Trends in Sequential Patterns of Data Mining"** is published in an International Journal of Computer Applications in Engineering, Technology and Sciences in July-2010 Issue.

2. A Research Paper Entitled **"Implementation of Clustering through Machine learning Tools"** is published in an International Journal of Computer Science on jan-2011.

3. A Research Paper Entitled **"An Human Powered Semantic Web Search Engine for Intranet"** is published in Global Journal of Mechanical Engineering and Computational Science on Oct-2011.

4. A Research Paper Entitled **"Data Integrity Proofs on Cloud Storage"** is published In **International Journal for Development in Computer Science and Technology** on Feb-2013.

5. **"Formation of K-Means and Density Based Clustering In Data",** is published in **International Journal of Scientific Research in Science, Engineering and Technology,** 2017, Volume 3, Issue 8, December-2017.

6. **"Comparative Study Of Density-Based Clustering Algorithms"** is published in **International Journal of Civil Engineering and Technology (IJCIET)** Volume 8, Issue 12, **December** 2017.

7. **"Enhancing of DBSCAN by Using Optics Algorithm in Data Mining"**, is published in **International Journal of Scientific Research in Science, Engineering and Technology**,(IJSRSET), January-February-2018

8. **"A Novel Approach for Improvement of Denclue in Clustering for Incomplete Systems"**, is published in International **Journal of Research in Electronics and Computer Engineering (IJRECE),** Vol. 6 issue 2 Apr.-June 2018.

9. **"An Efficient Density Based Clustering approach for High Dimensional Data"**, is published in **International Journal of Engineering & Technology (IJET)**, Volume 7 (2.32), July 2018.

10. **"Cross Breed Clustering Algorithm for High Dimensional Data"**. is published in **International Journal of Innovative Technology and Exploring Engineering (IJITEE)** ISSN: 2278-3075, Volume-9 Issue-1, November 2019.

11. "**Automatic Discovery of Online Harassment in Social Network with Machine Learning Techniques"** is published in **Solid State Technology** Volume: 63 Issue: 5 Publication Year: 2020.

BIODATA OF Co-PI: -

h) Name : Dr. Jagan Mohan Reddy D
i) Date of Birth : 05/08/1983
j) Academic qualifications : Ph.D (CSE)
k) Areas of expertise : Data Science and Machine Learning.
l) Experience :04

Sr. No.	Position held (Designation)	Place of work	Duration	Areas of work
1	Associate Professor (CSE)	LBRCE, Mylavaram.	27th Aug 2018 to till date	Data Science
2	Data Scientist	Code Tree Software Solutions Ltd, Vijayawada	1st Sep 2017 to 31st Aug 2018	Data Scientist
3	Sr. Data Analyst	Vedavaag Systems Ltd, Hyderabad	10th Aug, 2016 to 31st Aug, 2017	Sr. Data Analyst

m) Awards received, if any

- **Awarded PhD research fellowship from TCS, India between 2011 to 2015.**

n) Publications (Nos.) :15

Research papers:

Journals

- **Jagan Mohan Reddy D**, K. Venkateswara Rao, Shaik Fareena Sulthana G L Vara Prasad. "Identification of Indian Currency Denomination Using Deep Learning ". *JCR*. 2020; 7(18): 378-384. doi:10.31838/jcr.07.18.56 (Scopus Indexed)

- K. Venkateswara Rao, Jagan Mohan Reddy D , G L Vara Prasad. "AN APPROACH FOR DETECTING PHISHING ATTACKS USING MACHINE LEARNING TECHNIQUES". *JCR*. 2020; 7(18): 321-324. doi:10.31838/jcr.07.18.47 (Scopus Indexed)

- Dr. Jagan Mohan Reddy and A Vishnuvardhan Reddy, "Recognition of Handwritten Characters using Deep Convolutional Neural Network", International Journal of Innovative Technology and Exploring Engineering (IJITEE), VOL.8, Issue-6S4, April, 2019. (Scopus Indexed)

- Nibaran Das, Jagan Mohan Reddy, Ram Sarkar, Subhadip Basu, Mahantapas Kundu, Mita Nasipuri, "A statistical–topological feature combination for recognition of handwritten numerals", Applied Soft Computing 12.8 (2012): 2486-2495. (**SCI indexed**)

Book Chapter(s)

- Sk Johny Basha, **Jagan Mohan Reddy D**, Venkata Kishore Kumar Rejeti, "An Introduction to Data Science, Data Scientist and Data Analytics", in the edited book titled "Introduction to Data Science". ISBN No: 978-93-5416-648-8, 2020.

- **Jagan Mohan Reddy** and **Chittaranjan Hota**, "Attack Identification Framework for IoT Devices". Accepted at the 3rd International conference on Information Systems and Intelligent Applications, Springer, India, 2016.

- **Hota Chittaranjan, Pratik Narang**, and **Jagan Mohan Reddy**. "Unwanted Traffic Identification in Large-Scale University Networks: A Case Study." *Big Data Analytics*. Springer India, 2016. 163-187.

Conferences

- **Jagan Mohan Reddy D ,** Sirisha Regalla and Srinivasa Reddy Seelam . "Recruitment Prediction using Machine Learning". 5th International Conference on Computing, Communication and Security (ICCCS-2020), IIT, Patna, IEEE, October 14-16, 2020

- **Jagan mohan Reddy D** and A Vishnuvardhan Reddy, "Handwritten Numeral Recognition Deep Learning for Telugu", International Conference On Software Product Engineering and Configuration System (**ICSPECS-2019),** 11th & 12th January 2019.

- **Jagan Mohan Reddy** and **Chittaranjan Hota**, "Behavior-based P2P Traffic Identification using Fuzzy Approach". Accepted at the International conference on Applied and Theoretical Computing and Communication Technology, IEEE, 2016.

- **Jagan Mohan Reddy**, and **Chittaranjan Hota**. "Heuristic-based Real-Time P2P Traffic Identification." In *Emerging Information Technology and Engineering Solutions (EITES)*, 2015 International Conference on, pp. 38-43. IEEE, 2015.

- **Jagan Mohan Reddy**, and **Chittaranjan Hota**. "P2p traffic classification using ensemble learning." In *Proceedings of the 5th IBM Collaborative Academia Research Exchange Workshop*, p. 14. ACM, 2013.

- Narang, Pratik, **Jagan Mohan Reddy**, and **Chittaranjan Hota**. "Feature selection for detection of peer-to-peer botnet traffic." In *Proceedings of the 6th ACM India Computing Convention*, p. 16. ACM, 2013.
- **Jagan Mohan Reddy**, **Pratik Narang**, and **Chittaranjan Hota**, "P2P Traffic classification of Intrusion Detection Systems", workshop on *Security & Privacy Symposium (SPS)*, IIT K, 2012.

- **Jagan Mohan Reddy**, **Abhishek Thakur, Chittaranjan Hota**, "Approaches for Measuring P2P Classification Efficiency for Intrusion Detection and Prevention Systems", *National Conference on Cyber Security*, DIAT, India, 2012.

******

RESUME

Y. VIJAY BHASKAR REDDY.
E-mail: yaramala.vijay@gmail.com
Mob : 9848249504. **Date: 13-11-20**

To Work in a challenging academic position where my knowledge, experience, and skills will contribute to the success of the institution and also well as my personal growth.

SUMMARY:

Held senior academic positions in the areas of Computer Science & IT in various reputed Engineering Colleges. Having guided many students on several projects, have hands on experience in many programming languages and Databases. My Doctoral thesis is "**An Efficient Density Based Clustering Approach for High Dimensional Data"**, wherein I extensively researched on different high dimensional data sets. Certified by reputed organizations on Outcome Based Education and innovative teaching methodologies,

PROFESSIONAL SKILLS:

- Programming Languages: **C, C++, Java (J2SE, J2EE), Python, and PHP.**
- Databases: SQL, MS Access, MYSQL
- Tools: UML, Rational Rose.
- Platforms: Windows 95/98/NT
- Networks: Java Script,Servlets,Jsp, Windows NT, HTML
- Trained students under a program named **Programming Fundamentals** Conducted by Infosys **Technologies Ltd.**
- **Handling Training and Placement Classes(C,C++,SQL,Data Structures and Java) for Final year Students from last 10 years**
- **Delivered guest lectures at KBN College Vijayawada and KLR college of Engineering, Palvancha.**

PROFESSIONAL EXPERIENCE:

- Working as Associate Professor in CSE Department from August 2020 in Lakireddy Balireddy College of Engineering, Mylavaram.
- Worked as Associate Professor in CSE Department from March 2020 to July 2020 in Sphoorthy Engineering College, Nadergul, Hyderabad.

- Worked as Associate Professor in CSE Department from September 2014 to Feb 2020 in Vardhaman College of Engineering, Hyderabad.

- Worked as Associate Professor in MCA Department from March 2011 to August 2014 in Lakireddy Balireddy College of Engineering, Mylavaram.

- Worked as Assistant Professor in Department of MCA from Nov 2003 to Aug 2009 in Lakireddy Balireddy College of Engineering, Mylavaram.

- Acted as Prof-In-Charge **Microsoft Innovation Centre,** LBRCE, Mylavaram.

ADDRESS:

Sphoorthy Engineering College.
Sagar Road, Nadargul Village,
Near Vanasthalipuram,
Saroornagar Mandal-501510.
Hyderabad, Telangana, India
Ph: 08415 201137, 201138, Fax: 08415 201136
Mobile: 99631 11840
E-mail: info@sphoorthyengg.ac.in
Web: sphoorthyengg.ac.in

SUBJECTS HANDELED:

- **Java Programming**
- **Python For Data Science**
- **C-Programming**
- **Data-Structures**
- **Object Oriented Programming Through C++**
- **Operating System**
- **Data Base Management System**
- **Web Technologies.**
- **Open Source Technologies**

EDUCATION:

- **PhD** in **CSE** from **Rayalaseema University, Kurnool**, in 2019.

- **M.Tech (CSE)** from **Acharya Nagarjuna University**, **Guntur**, in 2011.

- **MCA** from **Madras University**, **Chennai**, in 2002.

- **B.SC** from **Kakatiya University, Warangal,** in 1999.

PROFESSIONAL TRAINING:

- Data Science certification by **IBM** , in **Course Era**

- Certified in the Programming for Everybody (**Getting Started with Python**) an online non-credit course authorized by University of Michigan and offered through **Coursera**.

- Attended a five days National level online Faculty Development Program on **"Artificial Intelligence"** organized by CBIT, Hyderabad in collaboration with Brain- O- vision India Pvt. Ltd, during 22 nd to 26 th May 2020.

- Attended a three days Faculty Development Program webinar entitled **"Hadoop and Machine Learning"** organized by MRIT, Secunderabad during 18th to 20 th May 2020.

- Completed an online Faculty Awareness program on **"Outcome Based Education & NBA Accreditation "**organized by Sri Chhatrapati Shivajiraje college of Engineering, Pune, from 12/05/2020 to 17/05/2020.

- Participated in five days FDP on "**Natural Language Processing"** organized by Dept of ICT academy at Vardhaman College of Engineering, Hyderabad on Jan 06th - 10th January ,2020.

- Participated in two days FDP on "**Agile Methodology and Scrum Framework"** organized by Dept of CSE&IT at Vardhaman College of Engineering, Hyderabad on 18th & 19th December,2019.

- Participated in five days FDP on "**Deep Learning and Applications"** organized by Dept of ICT academy at Vardhaman College of Engineering, Hyderabad on Dec09th - 13th December, 2019.

- Attended a five days workshop on "**Data Science and Big Data Analytics**" organized by **ICT a**cademy at Vardhaman College of Engineering, Hyderabad on 05th to 09th December, 2017.

- Attended a two days workshop on "**Outcome Based Education**" organized by **CEE**, Bangalore at Vardhaman College of Engineering, Hyderabad on 05th & 06th December, 2017.

- Certified **IUCEE International Engineering Educator Certification Program** (IIEECP) at Vardhaman College of Engineering, Hyderabad.

- Participated in a workshop named **Faculty Enablement Program** on Foundation Program –Generic Courses Organized by **Infosys at Infosys Technologies Ltd., Hyderabad.**

- Participated in a workshop entitled **"Research Opportunities Women and Young Scientist in Engineering, Science &Technology"** held in LakiReddy Bali Reddy College of Engineering.

- Volunteered as an Event Manager of ASPIRATIONS 2020 Conducted by **IEG-JKC-INFOSYS**.

- Attended in a Faculty Enablement Program Conducted by **Infosys Technologies,IEG and JNTU Hyderabad**

- Participated in a workshop conducted by **IBM named IBM-Faculty Development Program** at SRTST, NALGONDA.

- Attended a six days work shop on Teaching, Methodologies at LBRCE, Mylavaram conducted by **NITTTR, Chennai.**

- **Wipro Mission-10x** Certification organized by Wipro Technologies at LBRCE, Mylavarm, Krishna (Dist), A.P, India.

- Participated in the **Windows App fest2012 Organized by Microsoft at Bangalore.**

- Acted as an Event Organizer of "WOWZAPP" at LBRCE organized by **Microsoft.**

- Volunteered as an Event Organizer of "LOKITOKI" at LBRCE organized by **Microsoft and TCRIX.**

MEMBER SHIP:

- Life Member in computer Society of India (**CSI**).

PUBLICATIONS:

- A Research Paper Entitled "**New Trends in Sequential Patterns of Data Mining"** is published in an International Journal of Computer Applications in Engineering, Technology and Sciences in July-2010 Issue.

- A Research Paper Entitled **"Implementation of Clustering through Machine learning Tools"** is published in an International Journal of Computer Science on jan-2011.

- A Research Paper Entitled **"An Human Powered Semantic Web Search Engine for Intranet"** is published in Global Journal of Mechanical Engineering and Computational Science on Oct-2011.

- A Research Paper Entitled **"Data Integrity Proofs on Cloud Storage"** is published in **International Journal for Development in Computer Science and Technology** on Feb-2013.

- **"Formation of K-Means and Density Based Clustering In Data",** is published in **International Journal of Scientific Research in Science, Engineering and Technology,** 2017, Volume 3, Issue 8, December-2017.

- **"Comparative Study Of Density-Based Clustering Algorithms"** is published in **International Journal of Civil Engineering and Technology (IJCIET)** Volume 8, Issue 12, December 2017.

- **“Enhancing of DBSCAN by Using Optics Algorithm in Data Mining”**, is published in **International Journal of Scientific Research in Science, Engineering and Technology**,(IJSRSET), January-February-2018

- **“A Novel Approach for Improvement of Denclue in Clustering for Incomplete Systems”**, is published in International **Journal of Research in Electronics and Computer Engineering (IJRECE),** Vol. 6 issue 2 Apr.-June 2018.

- **“An Efficient Density Based Clustering approach for High Dimensional Data”**, is published in **International Journal of Engineering & Technology (IJET)**, Volume 7 (2.32), July 2018.

- **“Cross Breed Clustering Algorithm for High Dimensional Data”**. is published in **International Journal of Innovative Technology and Exploring Engineering (IJITEE)** ISSN: 2278-3075, Volume-9 Issue-1, November 2019.

- “**Automatic Discovery of Online Harassment in Social Network with Machine Learning Techniques”** is published in Solid **State Technology** Volume: 63 Issue: 5 Publication Year: 2020.

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING
(AUTONOMOUS)
Approved by AICTE, NEW DELHI. Affiliated to JNTUK, KAKINADA
MYLAVARAM-521 230, Krishna Dist. A.P. India. Tel : 08659 - 222933, 934, 223936 Fax : 08659 - 222931
e-mail : lbcemym@lbrce.ac.in website : www.lbrce.ac.in

CERTIFICATE FROM THE INVESTIGATOR

PROJECT TITLE: **DESIGN & DEVELOPMENT OF INTELLIGENT DEVICE TO DETECT PESTICIDES ON FRUITS/VEGETABLES USING DEEP LEARNING MECHANISM**

1. We agree to abide by the terms and conditions of the DST grant.
2. We did not submit this or a similar project proposal elsewhere for financial support.
3. We have explored and ensured that equipment and basic facilities will actually be available as and when required for the purpose of the project. We shall not request financial support under this project, for procurement of these items.
4. We undertake that spare time on permanent equipment will be made available to other users.
5. We have enclosed the following materials:

	ITEMS	NUMBER OF COPIES
(a)	Endorsement from the Head of the Institution (on letter head)	One
(b)	Certificate from Investigator	One
(c)	Certificate from Investigator regarding conflict of interest	One
(d)	Name and address of experts/institution interested in the subject/ outcome of the project	One
(e)	Copies of the proposals	One hard Copy

Date: 02/11/20.

Place: Mylavaram.

Name & Signature of Principal Investigator

Dr. Y .Vijay Bhaskar Reddy

Name & Signature Of Co-Investigator(s)

Dr. D. Jagan Mohan Reddy

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING
(AUTONOMOUS)
Approved by AICTE, NEW DELHI. Affiliated to JNTUK, KAKINADA
MYLAVARAM-521 230, Krishna Dist. A.P. India. Tel : 08659 - 222933, 934, 223936 Fax : 08659 - 222931
e-mail : lbcemym@lbrce.ac.in website : www.lbrce.ac.in

DEPARTMENT OF SCIENCE AND TECHNOLOGY
POLICY ON CONFLICT OF INTEREST

FOR REVIEWER & COMMITTEE MEMBER or APPLICANT or DST OFFICER ASSOCIATED/ DEALING WITH THE SCHEME/ PROGRAM OF DST

Issues of Conflicts of Interest and ethics in scientific research and research management have assumed greater prominence, given the larger share of Government funding in the country's R & D scenario. The following policy pertaining to general aspects of Conflicts of Interest and code of ethics, are objective measures that is intended to protect the integrity of the decision making processes and minimize biasness. The policy aims to sustain transparency, increase accountability in funding mechanisms and provide assurance to the general public that processes followed in award of grants are fair and non-discriminatory. The Policy aims to avoid all forms of bias by following a system that is fair, transparent and free from all influence/ unprejudiced dealings, prior to, during and subsequent to the currency of the programme to be entered into with a view to enable public to abstain from bribing or any corrupt practice in order to secure the award by providing assurance to them that their competitors will also refrain from bribing and other corrupt practice and the decision makers will commit to prevent corruption, in any form, by their officials by following transparent procedures. This will also ensure a global acceptance of the decision making process adopted by DST.

Definition of Conflict of Interest:

Conflict of Interest means "any interest which could significantly prejudice an individual's objectivity in the decision making process, thereby creating an unfair competitive advantage for the individual or to the organization which he/she represents". The Conflict of Interest also encompasses situations where an individual, in contravention to the accepted norms and ethics, could exploit his/her obligatory duties for personal benefits.

1. **Coverage of the Policy**:

a) The provisions of the policy shall be followed by persons applying for and receiving funding from DST, Reviewers of the proposal and Members of Expert Committees and Programme Advisory Committees. The provisions of the policy will also be applicable on all individuals including Officers of DST connected directly or indirectly or through intermediaries and Committees involved in evaluation of proposals and subsequent decision making process.

b) This policy aims to minimize aspects that may constitute actual Conflict of Interests, apparent Conflict of Interests and potential Conflict of Interests in the funding mechanisms that are presently being operated by DST. The policy also aims to cover, although not limited to, Conflict of interests that are Financial (gains from the outcomes of the proposal or award), Personal (association of relative / Family members) and Institutional (Colleagues, Collaborators, Employer, persons associated in a professional career of an individual such as Ph.D. supervisor etc.)

2. **Specifications as to what constitutes Conflict of Interest**.

Any of the following specifications (non-exhaustive list) imply Conflict of Interest if,

(i) Due to any reason by which the Reviewer/Committee Member cannot deliver fair and objective assessment of the proposal.

(ii) The applicant is a directly relative# or family member (including but not limited to spouse, child, sibling, parent) or personal friend of the individual involved in the decision making process or alternatively, if any relative of an Officer directly involved in any decision making process / has influenced interest/ stake in the applicant's form etc..

(iii) The applicant for the grant/award is an employee or employer of an individual involved in the process as a Reviewer or Committee Member; or if the applicant to the grant/award has had an employer-employee relationship in the past three years with that individual.

(iv) The applicant to the grant/award belongs to the same Department as that of the Reviewer/Committee Member.

(v) The Reviewer/Committee Member is a Head of an Organization from where the applicant is employed.

(vi) The Reviewer /Committee Member is or was, associated in the professional career of the applicant (such as Ph.D. supervisor, Mentor, present Collaborator etc.)

(vii) The Reviewer/Committee Member is involved in the preparation of the research proposal submitted by the applicant.

(viii) The applicant has joint research publications with the Reviewer/Committee Member in the last three years.

(ix) The applicant/Reviewer/Committee Member, in contravention to the accepted norms and ethics followed in scientific research has a direct/indirect financial interest in the outcomes of the proposal.

(x) The Reviewer/Committee Member stands to gain personally should the submitted proposal be accepted or rejected.

The Term "Relative" for this purpose would be referred in section 6 of Companies Act , 1956.

3. **Regulation**:
The DST shall strive to avoid conflict of interest in its funding mechanisms to the maximum extent possible. Self-regulatory mode is however recommended for stake holders involved in scientific research and research management, on issues pertaining to Conflict of Interest and scientific ethics. Any disclosure pertaining to the same must be made voluntarily by the applicant/Reviewer/Committee Member.

4. **Confidentiality**:

The Reviewers and the Members of the Committee shall safeguard the confidentiality of all discussions and decisions taken during the process and shall refrain from discussing the same with any applicant or a third party, unless the Committee recommends otherwise and records for doing so.

5. **Code of Conduct**

5.1 To be followed by Reviewers/Committee Members:

(a) All reviewers shall submit a conflict of interest statement, declaring the presence or absence of any form of conflict of interest.
(b) The reviewers shall refrain from evaluating the proposals if the conflict of interest is established or if it is apparent.
(c) All discussions and decisions pertaining to conflict of interest shall be recorded in the minutes of the meeting.
(d) The Chairman of the Committee shall decide on all aspects pertaining to conflict of interests.
(e) The Chairman of the Committee shall request that all members disclose if they have any conflict of interest in the items of the agenda scheduled for discussion.
(f) The Committee Members shall refrain from participating in the decision making process and leave the room with respect to the specific item where the conflict of interest is established or is apparent.
(g) If the Chairman himself/herself has conflict of interest, the Committee may choose a Chairman from among the remaining members, and the decision shall be made in consultation with Member Secretary of the Committee.
(h) It is expected that a Committee member including the Chair-person will not seek funding from a Committee in which he/she is a member. If any member applies for grant, such proposals will be evaluated separately outside the Committee in which he/she is a member.

5.2 To be followed by the Applicant to the Grant/Award:
(a) The applicant must refrain from suggesting referees with potential Conflict of Interest that may arise due to the factors mentioned in the specifications described above in Point No. 2.
(b) The applicant may mention the names of individuals to whom the submitted proposal should not be sent for refereeing, clearly indicating the reasons for the same.

5.3 To be followed by the Officers dealing with Programs in DST:
While it is mandatory for the program officers to maintain confidentiality as detailed in point no. 6 above, they should declare, in advance, if they are dealing with grant applications of a relative or family member (including but not limited to spouse, child, sibling, parent) or thesis/ post-doctoral mentor or stands to benefit financially if the applicant proposal is funded. In such cases, DST will allot the grant applications to the other program officer.

6. **Sanction for violation**

3.1 **For a) Reviewers / Committee Members and b) Applicant**
Any breach of the code of conduct will invite action as decided by the Committee.

3.2 **For Officers dealing with Program in DST**
Any breach of the code of conduct will invite action under present provision of CCS (conduct Rules), 1964.

7. **Final Appellate authority**:
Secretary, DST shall be the appellate authority in issues pertaining to conflict of interest and issues concerning the decision making process. The decision of Secretary, DST in these issues shall be final and binding.

8. **Declaration**
I have read the above "Policy on Conflict of Interest" of the DST applicable to the Reviewer/ Committee Member/ Applicant/ DST Scheme or Program Officer # and agree to abide by provisions thereof.

I hereby declare that I have no conflict of interest of any form pertaining to the proposed grant *
I hereby declare that I have conflict of interest of any form pertaining to the proposed grant *

* & # (Tick whichever is applicable)

Name of the ~~Reviewer~~/ ~~Committee Member or~~ Applicant ~~or DST Officer~~

Dr. Y. Vijay Bhaskar Reddy
02/11/20

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING
(AUTONOMOUS)
Approved by AICTE, NEW DELHI. Affiliated to JNTUK, KAKINADA
MYLAVARAM-521 230, Krishna Dist. A.P. India. Tel : 08659 - 222933, 934, 223936 Fax : 08659 - 222931
e-mail : lbcemym@lbrce.ac.in website : www.lbrce.ac.in

ENDORSEMENT FROM THE HEAD OF INSTITUTION

PROJECT TITLE: **DESIGN & DEVELOPMENT OF INTELLIGENT DEVICE TO DETECT PESTICIDES ON FRUITS/VEGETABLES USING DEEP LEARNING MECHANISM**

1. Certified that the Institute welcomes participation of **Dr.Y.Vijay Bhaskar Reddy** as the Principal Investigator and
   Dr. D. Jagan Mohan Reddy as the Co-Investigator for the project and that in the unforeseen event of discontinuance by the Principal Investigator, the Co-Investigator will assume the responsibility for the fruitful completion of the project (after obtaining consent in advance from DST).

2. Certified that the equipment, other basic facilities and such other administrative facilities as per terms and conditions of the grant, will be extended to investigator (s) throughout the duration of the project.

3. Institute assures financial and other managerial responsibilities of the project.

4. Certified that the organization has never been blacklisted by any department of the State Government or Central Government.

Name and Signature of Head of Institution
Prof. K. Appa Rao

28/10/2020

PRINCIPAL
Lakireddy Bali Reddy College of Engg
MYLAVARAM 521 230.

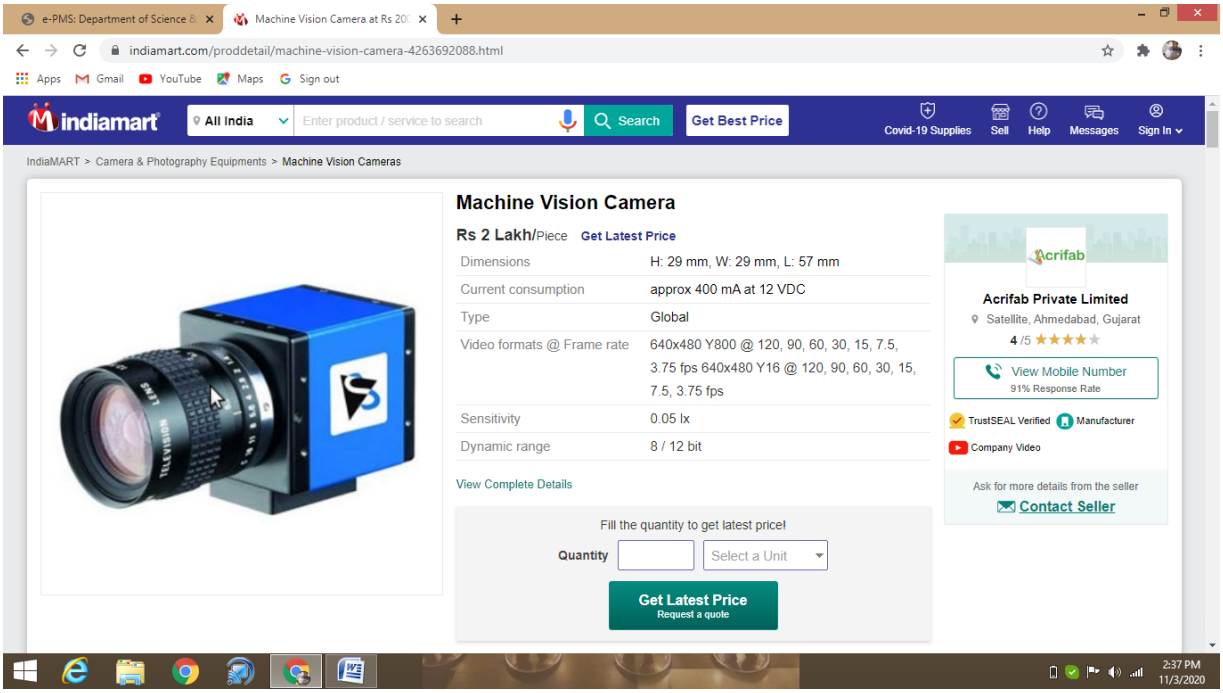
Date: 28/10/20.

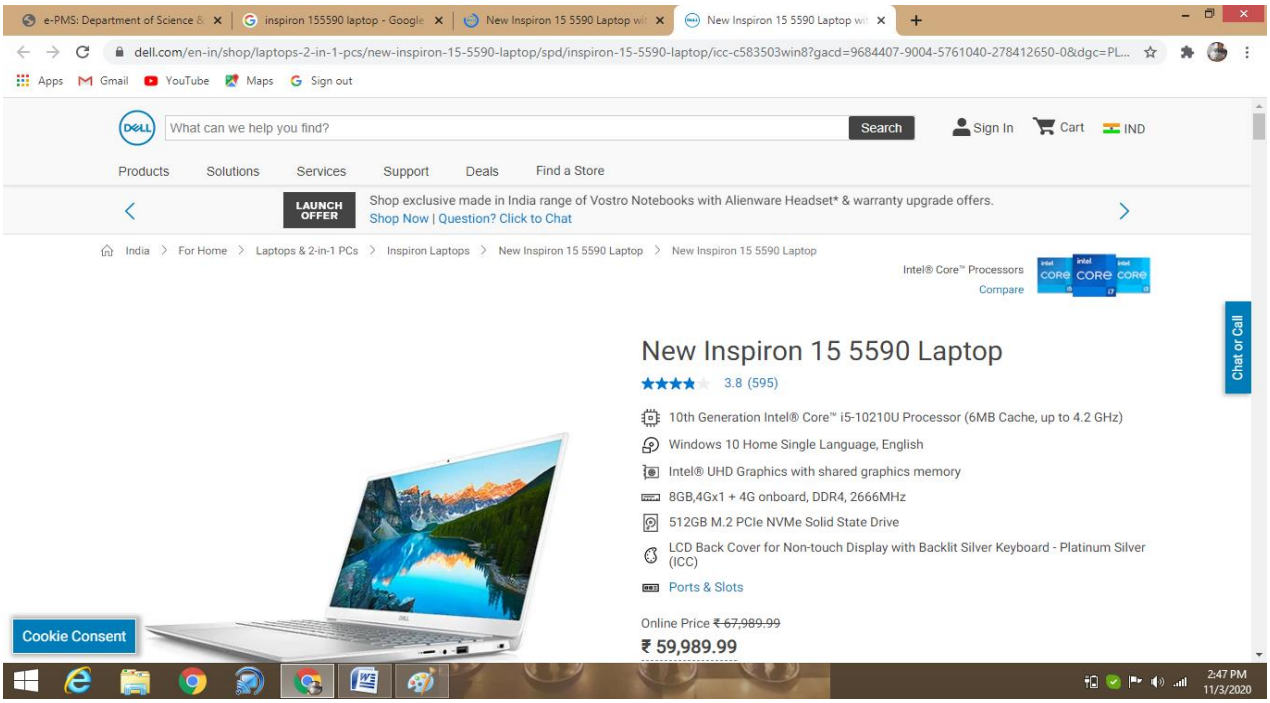
Place: Mylavaram.

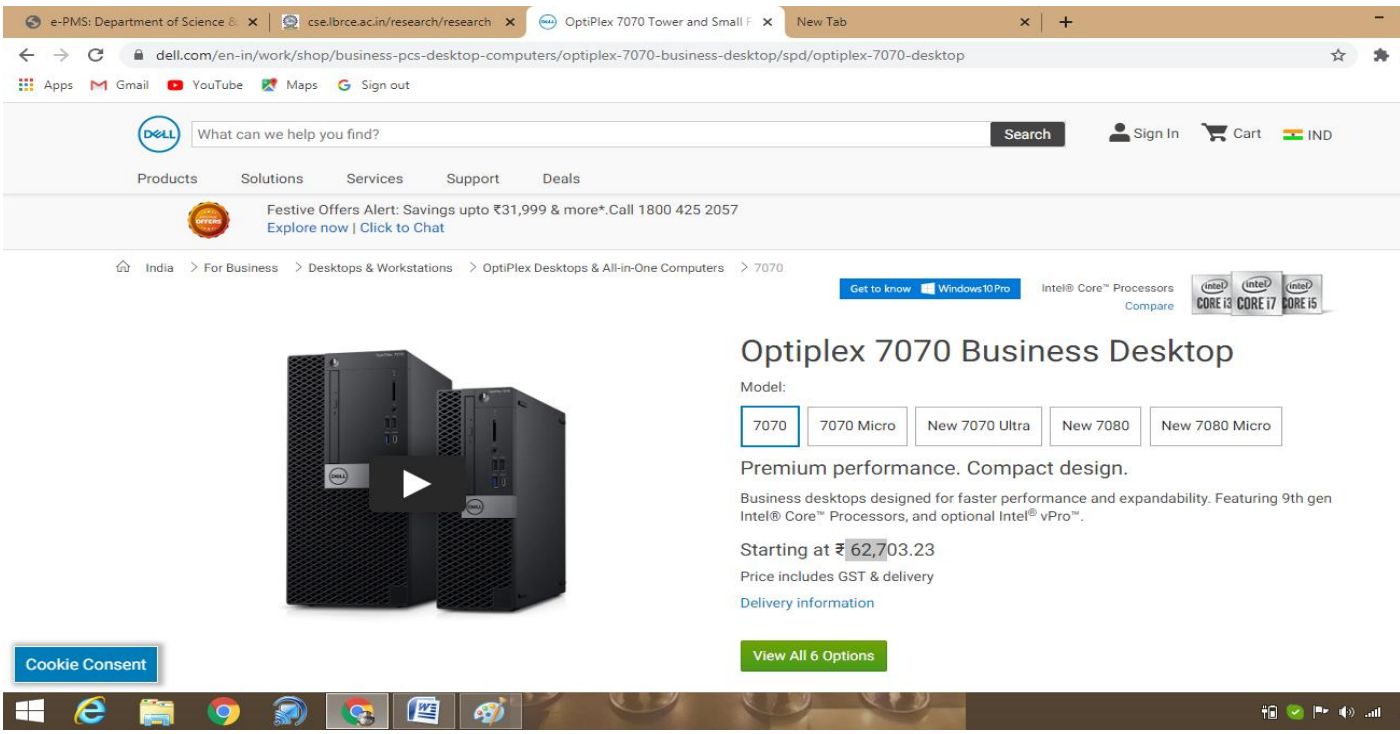
REMARKS: In regard to research proposals emanating from scientific institutions/laboratories under various scientific departments the Head of the institution is required to provide a justification indicating clearly whether the research proposals falls in line with the normal research activities of the institution or not and if not, the scientific reasons which merit its consideration by DST.

LIST OF EUIPMENT AND QUOTATIONS

S. No	NAME OF THE EQIPMENT	QTY	COST
1.	Machine vision Infra red camera	2	400000.00
2.	Laptops	2	120000.00
3.	Dell server	1	900000.00
4.	Desktop systems	2	126000.00
5.	D Link 1 Giga 24 port Switches	1	6,500
	TOTAL		15,52,500




e-PMS: Department of Science &
inspiron 155590 laptop - Google
New Inspiron 15 5590 Laptop wit
New Inspiron 15 5590 Laptop wit
dell.com/en-in/shop/laptops-2-in-1-pcs/new-inspiron-15-5590-laptop/spd/inspiron-15-5590-laptop/icc-c583503win8?gacd=9684407-9004-5761040-278412650-0&dgc=PL...
Apps
Gmail
YouTube
Maps
Sign out
What can we help you find?
Search
Sign In
Cart
IND
Products
Solutions
Services
Support
Deals
Find a Store
LAUNCH OFFER
Shop exclusive made in India range of Vostro Notebooks with Alienware Headset* & warranty upgrade offers.
Shop Now | Question? Click to Chat
India
For Home
Laptops & 2-in-1 PCs
Inspiron Laptops
New Inspiron 15 5590 Laptop
New Inspiron 15 5590 Laptop
Intel® Core™ Processors
Compare
Chat or Call
New Inspiron 15 5590 Laptop
3.8 (595)
10th Generation Intel® Core™ i5-10210U Processor (6MB Cache, up to 4.2 GHz)
Windows 10 Home Single Language, English
Intel® UHD Graphics with shared graphics memory
8GB,4Gx1 + 4G onboard, DDR4, 2666MHz
512GB M.2 PCIe NVMe Solid State Drive
LCD Back Cover for Non-touch Display with Backlit Silver Keyboard - Platinum Silver (ICC)
Ports & Slots
Online Price ₹ 67,989.99
₹ 59,989.99
Cookie Consent
2:47 PM
11/3/2020


e-PMS: Department of Science &
cse.lbrce.ac.in/research/research
OptiPlex 7070 Tower and Small F
New Tab
dell.com/en-in/work/shop/business-pcs-desktop-computers/optiplex-7070-business-desktop/spd/optiplex-7070-desktop
Apps
Gmail
YouTube
Maps
Sign out
What can we help you find?
Search
Sign In
Cart
IND
Products
Solutions
Services
Support
Deals
Festive Offers Alert: Savings upto ₹31,999 & more*.Call 1800 425 2057
Explore now | Click to Chat
India
For Business
Desktops & Workstations
OptiPlex Desktops & All-in-One Computers
7070
Get to know Windows10 Pro
Intel® Core™ Processors
Compare
CORE i3
CORE i7
CORE i5
Optiplex 7070 Business Desktop
Model:
7070
7070 Micro
New 7070 Ultra
New 7080
New 7080 Micro
Premium performance. Compact design.
Business desktops designed for faster performance and expandability. Featuring 9th gen Intel® Core™ Processors, and optional Intel® vPro™.
Starting at ₹ 62,703.23
Price includes GST & delivery
Delivery information
View All 6 Options
Cookie Consent

HEWLETT PACKARD
MICRO SYSTEMS & SERVICES
Ground Floor, Shop No.1
D.No.40-6-28/2,KrishnaNagar,
Behind Hotel Kandhari, Labbipet,
VIJAYAWADA-520 010
Ph:0866-6661414
E-Mail: br_mss@yahoo.com

Date:28.10.2020
Vijayawada.

To,
LBR College Of Engineering
Mylavaram.

Sub: Quotation ForPowerEdge R740 ServerReg...

PowerEdge R740 Server	QTY	UNIT RATE	TOTAL AMOUNT
1 PowerEdge R740/R740XD Motherboard 2 Intel Xeon Silver 4214 2.2G, 16C/24T, 9.6GT/s, 16.5M Cache, Turbo, HT (85W) DDR4-2400 1 iDRAC Group Manager, Enabled 1 Chassis with up to 8 x 2.5" SAS/SATA Hard Drives for 2CPU Configuration 1 PowerEdge 2U Standard Bezel 1 Riser Config 4, 3x8, 4 x16 slots 1 PowerEdge R740 Shipping Material 1 Dell EMC Luggage Tag 1 Quick Sync 2 (At-the-box mgmt) 1 2933MT/s RDIMMs 1 Performance Optimized 2 64GB RDIMM, 2933MT/s, Dual Rank 1 iDRAC9,Enterprise 1 480GB SSD SATA Read Intensive 6Gbps 512 2.5in Hot-plug AG Drive, 1 DWPD, 876 TBW 1 PERC H330 RAID Controller, Adapter, Low Profile 1 6 Performance Fans forR740/740XD 1 Heatsink and Install Kit for GPU configuration 1 No Internal Optical Drive 1 Dual, Hot-plug, Redundant Power Supply (1+1), 750W 2 Jumper Cord,10A,4M,C13/C14 (India BIS) 2 Deskside Power Cord, GType, 230V,2M (Nepal, Sri Lanka, India) 1 No Trusted Platform Module 1 NVIDIA Tesla M10 GPU, Requires GRID 2.0 SW for VDI Function 1 Broadcom 57416 Dual Port 10GbE BASE-T & 5720 Dual Port 1GbE BASE-T, rNDC 1 No Systems Documentation, No OpenManage DVD Kit 1 Power Saving Dell Active Power Controller 1 ReadyRails Sliding Rails With Cable Management Arm 1 Unconfigured RAID	1No		

HEWLETT PACKARD
MICRO SYSTEMS & SERVICES
Ground Floor, Shop No.1
D.No.40-6-28/2,KrishnaNagar,
Behind Hotel Kandhari, Labbipet,
VIJAYAWADA-520 010
Ph:0866-6661414
E-Mail: br_mss@yahoo.com

Software 1 iDRAC,Factory Generated Password 1 No Operating System **Service** 1 No Installation Services Selected 1 Basic Next Business Day 36 Months 1 Basic Next Business Day 24 Months			
			Total Amount:8,63,000

2).PowerEdge R740/R740XD Motherboard
2 Intel Xeon Silver 4214 2.2G, 12C/24T, 9.6GT/s, 16.5M Cache,
32 GB/1 Basic Next Business Day 36 Months ..... 1NO RS 7,55000/-

3).PowerEdge R740/R740XD Motherboard
2 Intel Xeon Silver 4214 2.2G, 16C/24T, 9.6GT/s, 16.5M Cache,
64 GB/1 Basic Next Business Day 36 Months ..... 1NO RS 8,07000/-

04.D-link 1Giga 24 port Switch 1No Rs.6500/-

Commercial Terms and Conditions	
1. Taxes	: INCLUSIVE OF ALL
2. Payment	: Against Delivery 10 Lash's Remaining payment may 1st week
2. Delivery	:20 To 25 Day from Date of PO.
3. Validity	:Price valid for 7 days
4. Order to be Placed on	:M/s.MICROSYSTEMS & SERVICES

Payment should be made through DD/Cheque

For MICROSYSTEMS & SERVICES

CH.RAVIKUMARVoice:9394033288
T.BALAJI Voice :9848656020