

# RAKSHAK

## Remedial Action, Knowledge Skimming and Holistic Analysis of COVID-19

### Objectives and Key Results

- Developing and deploying applications based on use cases.
- Creating a common pool and Databank for COVID 19 creating the context for open innovation.
- Acting as the focal point and nodal AI Technology Infrastructure for enabling the ecosystem for application-based technology development, deployment and transfer to take on top-level challenges identified or inter-ministerial projects calling for AI-based solutions.
- Setting up a distributed and accelerated cloud-based infrastructure for deploying a transformational AI in dealing with the COVID-19 pandemic by building a consortium of Researchers, Developers, Validators and for field deployment.

### Thematic Areas for Proposals

Interested consortium of Researchers, Developers, Validators for field deployment can apply in the following thematic areas (indicative and not exhaustive):

- Technologies for rapid Diagnostics
  - Self-Diagnostics X Ray Mobile Cough Detection
  - Early Diagnosis from Multi modal Data X Ray,
  - Tele Medicine Virtual Doctor (using text/speech/audio/images)
  - Respiratory rate and Temperature Monitoring using IoT
  - Contact Tracing using Bluetooth and GPS (User patterns, cluster formations using wireless signals)
  - Multiple Sample Testing to Scale Desperately
  - Grey Zone Prioritization for sampling
  - Staging of the Symptoms
  - Graded Ventilator Support System (moving from Territory to Primary)
  - Predictive Model that could prescribe Specialized Care based on Holistic Analysis of Co morbid Cases
  - Text-based Chatbot support and routing of actionable information (Guideline/resource management)
  - Test Collection: Self, Drones, New Supply Chain
- Managing Post Lockdown Scenario
  - Decentralizing through Chat Based and Phone based Orders through Federated ML for Local Grocer and Edge cloud
  - Vision Based Solution for Distancing
  - Hospitals and Self-Assessment Scheduling Algorithm appointment
  - Autonomous Systems for Sanitation (Indoor vs Outdoor)
  - To effectively sanitize public places
  - Multi Modal Authentication
  - Wrist Band with Bluetooth Distancing (IoT+AI)

- Thermal Mass Screening Systems
  - Schedule Appointments (Adding to Contact Tracing)
  - Pedestrian Walk Through Screening
- Emerging Technologies for Economic Activity and Restoration of Economy
  - Using Drones for Delivery and New Supply Chain. for Remote Places
  - Covid Free Supply Chains
  - DBT GST In (Economic Distress down to the household level)
  - Private Public Partnership for Earning Potential
  - Liquidity Modelling (Economists and CEA)
  - Post COVID Scenario Demand and Supply of Skill & Labor
  - Handling Problem of Migration (Factories, Agro, Construction, MSME)
  - Interstate Freight and Travel on Roads
  - Prioritization for relief

### **Checklist of the Proposal**

The following checklist can be adhered to while proposing the projects :

- Actors and Roles : Scientific Group, Data Group, End User Group, Delivery Translator (Startup/Industry)
- Timeline for Execution: Scoping of Tactical Impact vs Strategic Impact
- Budgets
- The proposal templates are attached in the mail.
- Fill Up the Google Form for Registration of the PI

**This Call for Proposal is LIVE till 27th of April, 2020 5 PM.**

Please mail to [covid\\_rakshak@iitj.ac.in](mailto:covid_rakshak@iitj.ac.in)

**PROFORMA FOR BIO-DATA (to be uploaded)**

1. Name and full correspondence address
2. Email(s) and contact number(s)
3. Institution
4. Date of Birth
5. Gender (M/F/T)
6. Category Gen/SC/ST/OBC
7. Whether differently abled (Yes/No)
8. Academic Qualification (Undergraduate Onwards)

	Degree	Year	Subject	University/Institution	% of marks
1.					
2.					
3.					
4.					

9. Ph.D thesis title, Guide's Name, Institute/Organization/University, Year of Award.

10. Work experience (in chronological order).

S.No.	Positions held	Name of the Institute	From	To	Pay Scale

11. Professional Recognition/ Award/ Prize/ Certificate, Fellowship received by the applicant.

S.No	Name of Award	Awarding Agency	Year

12. Publications (*List of papers published in SCI Journals, in year wise descending order*).

S.No.	Author(s)	Title	Name of Journal	Volume	Page	Year

13. Detail of patents.

S.No	Patent Title	Name of Applicant(s)	Patent No.	Award Date	Agency/Country	Status

14. Books/Reports/Chapters/General articles etc.

S.No	Title	Author's Name	Publisher	Year of Publication

15. Any other Information (maximum 500 words)

## Other Technical Details

### 1. Origin of the Proposal: *(Maximum 1 page)*

*(Scientific rationale for doing this work should be elaborated)*

### 2. Review of status of Research and Development in the subject

#### 2.1 International Status: *(Maximum 2 pages)*

*(Researchers working in the area worldwide and their contributions must be properly highlighted with recent references and reviews. A correct and faithful description of the international research status must be given)*

#### 2.2 National Status: *(Maximum 1 page)*

*(Same as above to cover the contribution of Indian Scientists in the project area)*

#### 2.3 Importance of the proposed project in the context of current status *(Maximum 1 page)*

*(Highlight what is the new area or gap which will be solved in the project in relating to what is already known. This is a very important section to project the novelty content of the proposal)*

#### 2.4 If the project is location specific, basis for selection of location be highlighted:

*(Maximum 1/2 page)*

### 3. Work Plan:

#### 3.1 Methodology: *(Maximum of 5 pages)*

*(It should contain all the details of how each of the objectives will be addressed. This section must be detailed and have clear plans, not vague and generalized statements. It should have several schemes, tables, figures, equations etc. in addition to text, explanation and justification of why the project research plan will work)*

#### 3.2 Time Schedule of activities giving milestones through BAR diagram. *(Maximum 1 page)*

#### 3.3 Suggested Plan of action for utilization of research outcome expected from the project. *(Maximum 1/2 page)*

#### 3.4 Environmental impact assessment and risk analysis. *(Maximum 1/2 page)*

#### 4. Expertise:

##### 4.1 Expertise available with the investigators in executing the project: *(Maximum 1 page)*

*(Professional expertise existing with each of the investigators in terms of publications, Patents and preliminary results, to execute every component of the proposal should be highlighted)*

##### 4.2 Summary of roles/responsibilities for all Investigators:

*(If the proposal contains more than one Investigator, it is important to clearly mention the role of each Investigator in implementing the objectives of the proposal. The Board does not encourage Investigators who do not have specific scientific role in the proposal)*

S. No.	Name of the Investigators	Roles/Responsibilities
1.		
2.		
3.		

##### 4.3 Key publications published by the Investigators pertaining to the theme of the proposal during the last 5 years

##### 4.4 Bibliography

#### 5. List of Projects submitted/implemented by the Investigators

*(All the Investigators should list out details of the Projects submitted, implementing and completed by them. The list should start with the Projects implemented by the Principal Investigator, followed by Co-PI1, Co-PI 2 etc.)*

##### 5.1 Details of Projects submitted to various funding agencies:

S. No	Title	Cost in Lakh	Month of submission	Role as PI/Co-PI	Agency	Status

##### 5.2 Details of Projects under implementation:

S. No	Title	Cost in Lakh	Start Date	End Date	Role as PI/Co-PI	Agency

### 5.3 Details of Projects completed during the last 5 years:

S. No	Title	Cost in Lakh	Start Date	End Date	Role as PI/Co-PI	Agency

### 6. List of facilities being extended by parent institution(s) for the project implementation.

#### 6.1 Infrastructural Facilities

Sr. No.	Infrastructural Facility	Yes/No/ Not required Full or sharing basis
1.	Workshop Facility	
2.	Water & Electricity	
3.	Laboratory Space/ Furniture	
4.	Power Generator	
5.	AC Room or AC	
6.	Telecommunication including e-mail & fax	
7.	Transportation	
8.	Administrative/ Secretarial support	
9.	Information facilities like Internet/Library	
10.	Computational facilities	
11.	Animal/Glass House	
12.	Any other special facility being provided	

**6.2 Equipment available with the Institute/ Group/ Department/Other Institutes for the project:**

<b>Equipment available with</b>	<b>Generic Name of Equipment</b>	<b>Model, Make &amp; year of purchase</b>	<b>Remarks including accessories available and current usage of equipment</b>
<b>PI &amp; his group</b>			
<b>PI's Department</b>			
<b>Other Institute(s) in the region</b>			

**7. Name and address of experts/ institution interested in the subject / outcome of the project.**

**Checklist:**

**1. Team Details:**

PI and Institute Details:  
Co-PI and Institute Details:  
Collaborators:  
Industrial Partners:

**2. Technical Details:**

Project Title:  
Domain:  
Total Cost:  
Project Summary (max 2000 words):  
Objectives (max 2000 words):  
Keywords (5-8):

Current Status (max 2000 words):  
Background, Motivation and Scope (max 2000 words):  
Methodology, Approach and Research Plan (max 4000 words):  
Justification and Novelty (max 2000 words):  
Benchmark, Milestones, and Timeline (max 2000 words):  
Nature and evidence of industry participation indicating the type and quantum of support justifying its role in this project (max 2000 words):  
Equipment, infrastructure and facilities available at the host organization(s):  
Evidence of technology developed (max 2000 words):  
Potential end users, stake holders or agencies (start-up, any govt or private agency) who would be keen to utilize your development (max 2000 words):  
Final outcome and deliverables (max 2000 words):

**Budget details:**

Budget Head	
Manpower	
Consumables	
Travel	
Equipment	
Contingency	
Other	
Overhead	

Year-wise details under each budget head with justifications (max 200 words):

Budget head	Year-1	Year-2	Year-3	Justification

References:  
Suggested Referee(s):  
Name with designation and contact details

**3. Other supported documents**