NATIONAL MISSION ON INTERDISCIPLINARY CYBER-PHYSICAL SYSTEMS

(NM-ICPS)

Advanced Communication Systems (ACS)

**Category 2**

Project Proposal Submitted to

IIITB COMET Foundation, the TIH in IIIT Bangalore

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Project Title

# Details of All Investigators

**(a) Principal Investigator (PI)**

|  |  |
| --- | --- |
| **Name** |  |
| **Designation** |  |
| **Affiliation** |  |
| **E-mail** |  |
| **Phone number** |  |

**(b) Co-Principal Investigator (Co-PI)**

(if more than one Co-PI, please add the following table below and give the detail of 2nd , 3rd Co-PIs)

|  |  |
| --- | --- |
| **Name** |  |
| **Designation** |  |
| **Affiliation** |  |
| **E-mail** |  |
| **Phone number** |  |

# Introduction and Motivation

(Introduce the problem area and describe the motivation behind the project proposal (maximum 1000 words)).

# Objectives

(Clearly state the objectives of the project (Maximum 500 words).

# Methodology

(Provide an overview of the solution methodology proposed to achieve the objectives mentioned earlier (maximum 1000 words).

# Experience of the Leadership (each point below write the response)

* 1. The PI/Co-PI involved in the project would have R&D experience in Physical Layer or MAC or RRC or Control Layer or Core Network elements of 4G/5G;
  2. The PI/Co-PI involved in the project would have prior experience in 4G/5G wireless research and standard contributions in Indian and Global.
  3. The PI should have proven track record of executing and delivering similar such project (at least one) in this wireless space.
  4. It is preferred as an optional requirement that, the PI/Co-PI of the group has prior experience of communication/modem chip design and implementation of Physical or MAC or RRC or control layers algorithms.

# Timeline

(Provide a Gantt chart showing the time schedule of activities with milestones and deliverables.)

# Relevance of the proposed project in terms of

## Cyber Physical Systems (CPS)

Explain how the proposed project is relevant to Cyber Physical Systems (maximum 300 words).

## Systems Development and Implementation

(Explain the relevant details about the types of Development, Testing, Modelling and implementation involved in the project.

## Industrial Applications

(Explain the industrial applications of the proposed project. (Maximum 500)

## Advancement of Technology

Explain how the proposed project will contribute towards advancement of technology in the Advanced Communication Systems (ACS) area (i) Research part; (ii) Development/Proof of Concept/Product/Transfer of Technology (both (i) and (ii) Maximum 500 words).

# Outcomes

(Note: This project of NM-ICPS along with the list of possible output given below, majorly focuses on research to Proof of concept (PoC), IPR generation, Transfer of Technology (to start ups, company(s)) leading to a product, which will be useful for the Nation and/or for global market, and niche man power training in Advanced Communication Systems;)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S. No.** | **Target Area** | **Targets** | | | | |
| **1st year** | **2nd year** | **3rd year** | **4th year** | **Total** |
| **1** | **Technology Development** |  |  |  |  |  |
| **(a)** | No. of technologies (IP, Licensing, Patents, etc.) |  |  |  |  |  |
| **(b)** | Technology products |  |  |  |  |  |
| **(c)** | Publications, IPR and other intellectual activities |  |  |  |  |  |
| **(d)** | Increase in CPS research base |  |  |  |  |  |
| **2** | **Entrepreneurship Development** |  |  |  |  |  |
| **(a)** | Technology Business Incubator (TBI) |  |  |  |  |  |
| **(b)** | Start-ups and Spinoff companies |  |  |  |  |  |
| **(c)** | Grand Challenges and Competitions (GCC) |  |  |  |  |  |
| **(d)** | Promotion and Acceleration of Young and Aspiring technology entrepreneurS (PRAYAS) |  |  |  |  |  |
| **(e)** | CPS-Entrepreneur In Residence (EIR) |  |  |  |  |  |
| **(f)** | Dedicated Innovation AcceLerator (DIAL) |  |  |  |  |  |
| **(g)** | CPS-Speed Support System (CPS-SSS) |  |  |  |  |  |
| **(h)** | Job Creation |  |  |  |  |  |
| **3** | **Human Resource Development** |  |  |  |  |  |
| **(a)** | Graduate Fellowships |  |  |  |  |  |
| **(b)** | Post-Graduate Fellowships |  |  |  |  |  |
| **(c)** | Doctoral Fellowships |  |  |  |  |  |
| **(d)** | Post-Doctoral Fellowships |  |  |  |  |  |
| **(e)** | Chair Professors |  |  |  |  |  |
| **(f)** | Skill Development |  |  |  |  |  |
| **4** | **National/International Collaboration** |  |  |  |  |  |
| **(a)** | International collaboration |  |  |  |  |  |

# Possible Risks Involved and Mitigation Plans

(Give an overview of the risks involved in the project and plans to mitigate them (Maximum 500 words)).

# Plan for Revenue Generation and Sustainability Based on the Outcomes Described Above (like, how your proposed idea will support TIH to sustain and grow to support in areas of Advanced Communication System due to your project)

(Provide details about plans for generation of revenue and sustainability, if any, based on the defined outcomes of the project (Maximum 500 words)).

# Details of Industry/Academia Partners Associated with the Proposed Project (if any)

Industry partner(s):

|  |  |
| --- | --- |
| **Name of the industry partner** |  |
| **Address** |  |
| **Contact person name** |  |
| **Contact person e-mail ID** |  |

Academia partner(s):

|  |  |
| --- | --- |
| **Name of the academia partner** |  |
| **Address** |  |
| **Contact person name** |  |
| **Contact person e-mail ID** |  |

# Start-ups and Transfer of Technology (ToT) plans

Outline plans for possible founding of start-ups and Transfer of Technology (ToT) as outcomes of the project.

# Budget Details

* + 1. In case of involvement of multiple institutes/organizations, please provide budget heads accordingly.

**Institute name:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Budget Head** | **1st year**  **(in INR)** | **2nd year**  **(in INR)** | **3rd year**  **(in INR)** | **4th year**  **(in INR)** | **Total**  **(in INR)** |
| Manpower |  |  |  |  |  |
| Consumables |  |  |  |  |  |
| Travel |  |  |  |  |  |
| Equipment |  |  |  |  |  |
| Contingencies |  |  |  |  |  |
| Other costs (patenting) |  |  |  |  |  |
| Overhead |  |  |  |  |  |
| **Grand Total**  **(in INR)** |  |  |  |  |  |

**Details and justification for each budget head:**

* **Manpower:**
* **Consumables:**
* **Travel:**
* **Equipment:**
* **Contingencies:**
* **Other costs:**
* **Overhead:**
  + 1. Indian industry participation and their financial contributions (if any):

(Please give in detail their financial contributions and sharing of revenue plans.)

# List of Projects Ongoing/Completed by the PI

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **S. No.** | **Title** | **Cost**  **(in Lakh INR)** | **Start date** | **End date** | **Role (PI / Co-PI)** | **Funding agency** | **Is this project related to CPS? (Yes/No)** |
| 1. |  |  |  |  |  |  |  |
| 2 |  |  |  |  |  |  |  |

# List of Projects Ongoing/Completed by the Co-PI(s)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **S. No.** | **Title** | **Cost**  **(in Lakh INR)** | **Start date** | **End date** | **Role (PI / Co-PI)** | **Funding agency** | **Is this project related to CPS? (Yes/No)** |
| 1. |  |  |  |  |  |  |  |
| 2 |  |  |  |  |  |  |  |

# Any Other Credentials of PI/Co-PI

# References

Signature of PI: Signature of Head of Institute/

Dean R&D:

Name: Name:

Date: Date:

Seal: