

## Unmanned Aerial Systems Forum Industry Connections Activity Initiation Document (ICAID)

Version: 1.0, 27 April 2022

IC22-004-01 Approved by the CAG 7 June 2022

### Instructions

- Instructions on how to fill out this form are shown in red. It is recommended to leave the instructions in the final document and simply add the requested information where indicated.
- **Shaded Text** indicates a placeholder that should be replaced with information specific to this ICAID, and the shading removed.
- Completed forms, in Word format, or any questions should be sent to the IEEE Standards Association (IEEE SA) Industry Connections Committee (ICCom) Administrator at the following address: [industryconnections@ieee.org](mailto:industryconnections@ieee.org).
- The version number above, along with the date, may be used by the submitter to distinguish successive updates of this document. A separate, unique Industry Connections (IC) Activity Number will be assigned when the document is submitted to the ICCom Administrator.

### 1. Contact

Provide the name and contact information of the primary contact person for this IC activity. Affiliation is any entity that provides the person financial or other substantive support, for which the person may feel an obligation. If necessary, a second/alternate contact person's information may also be provided.

**Name:** Mustafa Wajid & Dr. Satyanarayanan Chakravarthy

**Email Address:** [mustafa.wajid@meher.com](mailto:mustafa.wajid@meher.com) & [satyachakra@gmail.com](mailto:satyachakra@gmail.com)

**Employer:** Meher Group & IIT-Madras

**Affiliation:** Meher Group & IIT-Madras

IEEE collects personal data on this form, which is made publicly available, to allow communication by materially interested parties and with Activity Oversight Committee and Activity officers who are responsible for IEEE work items.

### 2. Participation and Voting Model

Specify whether this activity will be entity-based (participants are entities, which may have multiple representatives, one-entity-one-vote), or individual-based (participants represent themselves, one-person-one-vote).

Entity-Based

### 3. Purpose

#### 3.1 Motivation and Goal

Briefly explain the context and motivation for starting this IC activity, and the overall purpose or goal to be accomplished.

The proposed Industry Connections (IC) program seeks to create a flexible platform to debate technology, techno economics, market penetration, policy, regulatory requirements of Unmanned

Aerial Systems (UAS) and broadly work on the following three aspects to progress the deployment of UAS across various sectors (for example e-commerce, Governance, Agriculture, Healthcare, Disaster Relief, etc):

1. Create Thought Evolving and Thought Leadership platform with an emphasis on India in the context of the recently declared policies by the Government of India relating to deployment, operation (including Drones-As-A-Service), and safety regulations for Unmanned Aerial Systems
2. To define and structure multiple study groups to work on specific sectors
3. Review various technologies and application dynamics domain wise
  - a. Technology options focused on the techno economic viability. Understand the techno economic realities of the country and adopt appropriate technologies
  - b. Looking at the technology from an application perspective
  - c. Discuss and debate on the issues from design & development to material, energy storage, fuelling, etc.

### **3.2 Related Work**

Provide a brief comparison of this activity to existing, related efforts or standards of which you are aware (industry associations, consortia, standardization activities, etc.).

IEEE UAS Standards Tracking and Standards Development Related Research Needs Industry Connections Program works on UAS, however, they are very much focused on the existing standards and the gaps in standards. Whereas the proposed IC program is broad and prepares to analyze the whole ecosystem.

Drone related standards from IEEE Communications Society

### **3.3 Previously Published Material**

Provide a list of any known previously published material intended for inclusion in the proposed deliverables of this activity.

None

### **3.4 Potential Markets Served**

Indicate the main beneficiaries of this work, and what the potential impact might be.

- Agriculture (pesticide/nutrient/fertilizer spraying, crop health monitoring)
- E-Commerce (drone deliveries – mid-mile and last-mile)
- Medical (medicines, blood packets, vaccines, patients' samples, organs)
- Disaster management (surveying damage, distribution of relief, temporary mobile towers (tethered drones) – floods, forest fires, train accidents, etc.)
- Land survey, surveillance, patrol, mapping, inspection (all using camera-based drones)

### **3.5 How will the activity benefit the IEEE, society, or humanity?**

UAS has the potential to serve humanity in multiple applications including healthcare, agriculture, security, disaster relief, etc. This IC program would bring forth the potential of analyzing the systems across the whole ecosystem.

#### **4. Estimated Timeframe**

Indicate approximately how long you expect this activity to operate to achieve its proposed results (e.g., time to completion of all deliverables).

**Expected Completion Date:** 06/2024

IC activities are chartered for two years at a time. Activities are eligible for extension upon request and review by ICCom and the responsible committee of the IEEE SA Board of Governors. Should an extension be required, please notify the ICCom Administrator prior to the two-year mark.

#### **5. Proposed Deliverables**

Outline the anticipated deliverables and output from this IC activity, such as documents (e.g., white papers, reports), proposals for standards, conferences and workshops, databases, computer code, etc., and indicate the expected timeframe for each.

Following are some of the deliverables this IC program plans to achieve

- Whitepapers
- Use case studies and operational scenarios
- Policy and regulatory recommendations
- Identify gaps and propose new standards
- Recommendations on standardization of components, landing sites and ground equipment, etc.

#### **5.1 Open Source Software Development**

*Indicate whether this IC Activity will develop or incorporate open source software in the deliverables. All contributions of open source software for use in Industry Connections activities shall be accompanied by an approved IEEE Contributor License Agreement (CLA) appropriate for the open source license under which the Work Product will be made available. CLAs, once accepted, are irrevocable. Industry Connections Activities shall comply with the IEEE SA open source policies and procedures and use the IEEE SA open source platform for development of open source software. Information on IEEE SA Open can be found at <https://saopen.ieee.org/>.*

Will the activity develop or incorporate open source software (either normatively or informatively) in the deliverables?

Yes

#### **6. Funding Requirements**

Outline any contracted services or other expenses that are currently anticipated, beyond the basic support services provided to all IC activities. Indicate how those funds are expected to be obtained (e.g., through participant fees, sponsorships, government, or other grants, etc.). Activities needing substantial funding may require additional reviews and approvals beyond ICCom.

This Industry Connections program does not anticipate any funding requirements and would work with the basic support services provided to all IC activities.

## 7. Management and Procedures

### 7.1 Activity Oversight Committee

Indicate whether an IEEE Standards Committee or Standards Development Working Group has agreed to oversee this activity and its procedures.

**Has an IEEE Standards Committee or Standards Development Working Group agreed to oversee this activity?**

No

If yes, indicate the IEEE committee's name and its chair's contact information.

**IEEE Committee Name:** Committee Name

**Chair's Name:** Full Name

**Chair's Email Address:** who@where

Additional IEEE committee information, if any. Please indicate if you are including a letter of support from the IEEE Committee that will oversee this activity.

IEEE collects personal data on this form, which is made publicly available, to allow communication by materially interested parties and with Activity Oversight Committee and Activity officers who are responsible for IEEE work items.

### 7.2 Activity Management

If no Activity Oversight Committee has been identified in 7.1 above, indicate how this activity will manage itself on a day-to-day basis (e.g., executive committee, officers, etc.).

This IC program would have an executive committee chaired by Mr. Mustafa Wajid and co-chaired by Dr. Satyanarayanan Chakravarthy. The committee shall meet every-other-month to discuss and debate on the focus areas and track/document the outcomes

### 7.3 Procedures

Indicate what documented procedures will be used to guide the operations of this activity; either (a) modified baseline *Industry Connections Activity Policies and Procedures* ([entity](#), [individual](#)), (b) *Abridged Industry Connections Activity Policies and Procedures* ([entity](#), [individual](#)), (c) Standards Committee policies and procedures accepted by the IEEE SA Standards Board, or (d) Working Group policies and procedures accepted by the Working Group's Standards Committee. If option (a) is chosen, then ICom review and approval of the P&P is required. If option (c) or (d) is chosen, then ICom approval of the use of the P&P is required.

Specify the policies and procedures document to be used. Attach a copy of chosen policies and procedures.

Abridged Industry Connections Activity Policies and Procedures

## 8. Participants

### 8.1 Stakeholder Communities

Indicate the stakeholder communities (the types of companies or other entities, or the different groups of individuals) that are expected to be interested in this IC activity and will be invited to participate.

- Dr. Satyanarayanan Chakravarthy, IIT Madras
- Mr. Mustafa Wajid, Meher Group
- Niti Aayog
- Drone Federation of India
- Ministry of Civil Aviation, Government of India
- Quality Council of India
- Drone/UAS manufacturers
- Drone/UAS components/systems/subsystems/software manufacturers/developers

**8.2 Expected Number of Participants**

Indicate the approximate number of entities (if entity-based) or individuals (if individual-based) expected to be actively involved in this activity.

20

**8.3 Initial Participants**

Provide a few the entities or individuals that will be participating from the outset. It is recommended there be at least three initial participants for an entity-based activity, or five initial participants (each with a different affiliation) for an individual-based activity.

Use the following table for an entity-based activity:

Entity Name	Primary Contact Name	Additional Representatives
IIT-Madras	Prof. Satyanarayanan Chakravarthy	
Meher Group	Mr. Mustafa Wajid	
YelloSkye	Kush Agarwal	
Boonbox	Ram Ramanathan	

**8.4 Activity Supporter/Partner**

Indicate whether an IEEE committee (including IEEE Societies and Technical Councils), other than the Oversight Committee, has agreed to participate or support this activity. Support may include, but is not limited to, financial support, marketing support and other ways to help the Activity complete its deliverables.

**Has an IEEE Committee, other than the Oversight Committee, agreed to support this activity?**

No

If yes, indicate the IEEE committee's name and its chair's contact information.

**IEEE Committee Name:** Committee Name

**Chair's Name:** Full Name

**Chair's Email Address:** who@where

Please indicate if you are including a letter of support from the IEEE Committee.