



Official Rules for

Smart Communities, Smart Responders

An Artificial Intelligence for Internet of Things (AI3) Prize Competition

June 19, 2023 UPDATE

Challenge hosts:

Texas A&M University



TEXAS A&M
UNIVERSITY®

Texas A&M Engineering Extension Service



Partner:



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COMPETITION BACKGROUND

The rapid deployment of 5G infrastructure, Internet of Things (IoT) devices, smart buildings, transportation, and public safety data streams benefit communities across the country. However, these technologies create a flood of data that is difficult for public safety leaders and individual first responders to effectively segment, process, integrate, analyze, and act on in real time. The **Smart Communities, Smart Responders: An Artificial Intelligence for Internet of Things Prize Competition (AI3 Prize Competition)** seeks to address this situation by accelerating the development of real-time data visualization with rapid IoT sensor integration, accessing various IoT data streams delivered in usable formats. The objective is to help first responders solve complex problems interoperating and integrating sensor information, thus improving situational analysis and response time. Funded by the National Institute of Standards and Technology (NIST), Public Safety Communications Research Division (PSCR) under grant 70NANB22H004, Texas A&M University (TAMU) and US-Ignite invite public solvers to join the AI3 Prize Competition. High-performing contestants have opportunities throughout the competition to develop their solutions and compete in a final, live test event.

CONTEST OVERVIEW

The AI3 Prize Competition is a three-phase competition that offers up to \$360,000 in cash prizes. Participants will focus on algorithms and implementations that can appropriately ingest, identify, and aggregate data to enhance a first responder's situational awareness. The challenge aims to develop software components for integration into an end-to-end middleware solution that will ingest, evaluate, and categorize data from multiple IoT devices with different output data formats. The winning solution should be capable of recognizing existing sensor data elements and incorporating previously unknown data elements based on contextual analysis. The output data will later be utilized to support multiple user interfaces to improve situational awareness for first responders as a communal resource.

Objectives

- Increasing situational awareness for first responders and unit commanders
- Integrating IoT sensor data into intuitive data visualization interfaces
- Providing access to segmented and operationalizable real-time data
- Using Artificial Intelligence (AI) to fuse, align, support, or confirm data from multiple IoT real-time sources with pre-event data
- Using IoT data and AI to alert or highlight status, changes, activities, and events
- Ingesting unknown data, evaluating it based on metadata or other contextual information

Technologies

The Participants must use non-proprietary, open-source software for the development of their AI for IoT (AI3) system. The Participants' solutions must be capable of integration with open-source tools, such as those listed below. The end solution submitted by the Participants can be proprietary and is not required to be open-source. The following is a list of technologies that are relevant to the competition.

- InfluxDB Open-Source Time Series Database
- Apache Storm
- MQTT - The Standard for IoT Messaging
- Recorded live and simulated sensor data
- Data collection systems: While the exact sensors that will be used have not yet been determined, examples of what might be expected can be found below:
 - Unmanned Aerial Vehicles (UAVs)
 - Thermal Imaging Camera (TIC)
 - Gas Dosimeter Systems
 - Heat Flux Measurement Gauges
 - Personal Alert Safety Systems including wearable health and location devices
 - Surveillance/Video camera systems
 - Acoustic sensor systems
 - Climate and environmental sensors
 - Wearable health and location devices
 - Recorded live and simulated sensor data

Opportunities for Solvers

- Traveling to key events and visiting the world-class training facilities for first responders
- Expanding network in the public safety community
- Testing solutions by the public safety community in staged emergency scenarios during the final live event
- Receiving feedback from the industry and academic leaders
- Identifying data sources and Artificial Intelligence (AI) technologies to improve emergency responder capabilities
- Identifying technologies that improve health and safety of emergency responders

COMPETITION PHASES AND AWARD SUMMARY

	Phase Description	Eligible Participants	Number of Winners	Total Award Amount
Phase 1 Concept paper Virtual	Contestants will propose datastream, machine learning (ML) and AI solutions to improve first responders' workflow	Open to all	Up to 10 teams	\$10K each team \$100K total
Phase 2 Demonstration of Algorithms and AI Models Virtual	Walk-on contestant applications and downselecting	Open to all (including those not selected in Phase 1)	Up to 5 teams	No cash awards
	Contestants will build ML models to analyze and classify known and unknown streaming data	Up to 10 teams selected from Phase 1 and up to 5 eligible walk-on Contestants	Up to 7 teams	\$20K each team \$140K total
Phase 3 Evaluation and Live Competition In person	Contestants will demonstrate that their software can successfully receive and process the streaming data prior to and during the final event	Selected from Phase 2	Up to 3 teams	1st Place \$100K 2nd Place \$40K 3rd Place \$20K \$160K total

Table 1. Competition phases and award summary. NOTE: Any prize funds that are available but are not awarded to any contestants during Phase 2 will be moved forward and awarded in Phase 3. If needed, a rules modification will occur to indicate the new prize amounts.

COMPETITION TIMELINE

Phase Name		Date	Description	
Phase 1 Concept paper		November 20, 2022	Official launch of the Prize Competition	
		January 10, 2023	Submission deadline	
		January 30	Winners are announced	
Phase 2 Demonstration of Algorithms and AI Models		February 1, 2023	Phase 2 begins	
		February 6-10 (TBD)	Phase 2 kick-off webinar	
		May 15	Submission deadline for the progress report for Phase 1 winners Registration and submission deadline for Walk-on contestants	
		May 20	Walk-on contestants notified if advancing to Live datastream demo	
		July 5	Live datastream demonstration and testing of ML models	
		July 13-14	Winners announced	
	Phase 3 Evaluation and Live Competition	Interim Evaluation	July 3, 2023 July 17	Phase 3 begins
July 3-7 (TBD) July 20			Phase 3 kick-off webinar	
August 18 August 28			Submission deadline for the progress report	
August 28-31 September 5-8			Virtual evaluation session to help contestants improve the solution and prepare for the final event	
Final Event			October 20, 2023	Submission deadline for the final report
			November 1-3	Live competition at Disaster City. Final winners announced

Table 2. Competition timeline.

(NOTE: TAMU and US-Ignite reserve the right to revise the dates at any time.)

HOW TO ENTER

- Contestants will use the [US Ignite website](#) to enter and for updates about the Competition; they will also be able to see competition rules on [challenge.gov](#) website.
- Direct questions about the AI3 Prize Competition to ai3info@lists.tamu.edu.
- Attend the virtual kick-off webinars for each phase of the competition (At least one team member should attend) or attest to watching the recorded webinar.
- Designate one individual to serve as their [Official Representative](#) and one individual to serve as an alternate to assume the role and requirements of the Official Representative if, and only if, the first individual has resigned from their role as Official Representative or has failed to respond to NIST, TAMU, or US-Ignite communications for a period of 30 consecutive days.
- Complete the submission requirements for each phase and submit by the deadline (details of submission requirements for each phase can be found in the relevant section).
- Use the AI3 Competition page on the [US Ignite website](#) for submission of each phase requirement.
- Note: Contestants will be able to apply for Phase 2 as a “walk-on”, even if they don’t submit a white paper for Phase 1. See [Phase 2’s Walk-on Contestants Option](#) for more details.

OFFICIAL RULES FOR CONTEST PHASES

PHASE 1: CONCEPT PAPER

Description

An earthquake has happened in American City X. Multiple buildings have collapsed and most are damaged. First responders from the City’s fire department, law enforcement, and emergency medical services officials have arrived to address the city-level disaster, direct citizens to safe facilities, and treat the injured. As the disaster unfolds, there are

cascading effects, such as electricity outages, main water pipe breakages, flooding, telecommunication problems, and active shooting; the City management realizes that additional help is required. City officials call for mutual aid from neighboring cities Y and Z. These cities' responders require environmental information from City X. While all three cities have personal area monitoring for their responders, their systems differ. Utilizing the output of an AI3 component, each responder group would be able to direct its system to the appropriate data source. The AI3 component would be able to ingest the unknown data, evaluate it based on metadata or other contextual information, and appropriately categorize the data. Such a system could be utilized on a situational awareness platform, and each city could automatically view others' actions without manually integrating the different sensor systems.

Eligible participants are invited to submit a concept paper outlining their proposed solution for the emergency scenario and a corresponding justification of the methodology for data acquisition, sources, and data streaming. A panel of subject matter experts (SMEs) may review the concept papers. A judging panel will evaluate and select up to 10 contestants to move forward to the next phase and receive an award of \$10,000 each.

Eligibility: Any contestant meeting the [Terms and Conditions: Eligibility Requirements](#) may participate.

How to Enter

- Attest to thoroughly read and agree to comply with the Official Rules, including the Terms and Conditions.
- Complete the registration form provided on the AI3 Competition page on the [US Ignite website](#) (updated competition rules and the link will be provided along with the official launch).
- Attend the virtual Phase 1 informational webinar or attest to watching the recorded webinar.

Submission Requirements

1. Cover page (2 pages)

- Participant's Name (Team, Organization or Company Name) and list of individual team member(s)
- Participant's Location (City, State/Region, and Country)
- Team Logo (optional)
- Official Representative and alternate Official Representative, along with their preferred contact information (i.e., email, phone, and physical mailing address)
- Describe succinctly (500 words max) the unique aspects of the participant's approach and the potential impact that the proposed approach could have in achieving the objectives of the challenge.

2. Information about key team members (2 pages)

- The key team members
- The team's knowledge, skills, and capabilities as they relate to the objectives of the competition's objectives

3. Project description (6 pages max)

Create your concept paper to address the following criteria:

- The proposed solution
- The competitive advantage offered by the solution
- The methodology for data acquisition and sources
- The team's justification for their solution's market-readiness within __ years

Evaluation Criteria

The competition organizers will review contestant's concept papers to ensure they meet the minimum criteria and compliance testing before the judges evaluate the submissions.

These minimum criteria are:

- The concept paper meets all submission requirements
- Proposed solution is coherently presented and technically feasible

The judging panel will evaluate submissions that have passed the initial compliance test using the criteria listed in Table 3 below and score using the associated weightings. The judging panel makes an independent assessment of each concept paper.

Category	Poor (0-1)	Fair (2-4)	Good (5-7)	Excellent (8-10)	Score
Strategic alignment	The solution does not meet the objectives. The solutions have very little real-world impact on public safety operations.	The solution meets the objectives The solutions have little real-world impact on public safety operations.	The solution meets the objectives The solutions have real-world impact on public safety operations.	The solution meets the objectives The solutions have a significant real-world impact on public safety operations.	20%
Feasibility and sustainability	The contestant(s) do not address any aspects of the proposed project.	The contestant(s) address some aspects of the proposed project with a low chance of success.	The contestant(s) address all aspects of the proposed project with some chance of success.	The contestant(s) address all aspects of the proposed project with a high chance of success.	30%
Technical outcomes	The approach and data acquisition methodology in the concept paper are vaguely presented.	The approach and data acquisition methodology in the concept paper are presented. No AI/ Machine Learning (ML) technologies were utilized in solving the real world problems.	The approach and data acquisition methodology in the concept paper are clearly presented. AI/ML technologies were used in solving real world problems.	The approach and data acquisition methodology in the concept paper are clearly presented. Utilize AI/ML technologies innovatively in solving real world problems.	30%
Team qualifications	The contestants have neither relevant expertise nor time commitment.	The contestants do not have either relevant expertise or time commitment.	The contestants have some relevant expertise and time commitment.	The contestants have strong relevant expertise and time commitment	20%

Table 3. Evaluation criteria for phase 1

Judging Process

Individual judges will evaluate submissions that have passed the initial compliance test with the criteria listed in Table 3 and use the Individual Team Evaluation Form (ITEF) to take notes and score each category with the associated weights. The competition organizers will ensure that each concept paper is reviewed by all judges. The judging panel will use the Cumulative Evaluation Form (CEF) to assess teams and rank them based on the scores. The judging panel will vote between tied teams.

PHASE 2: DEMONSTRATION OF ALGORITHMS AND ML MODELS

Description

During Phase 2, the competition organizers will provide data from known sensor platforms and streaming data from one or more unknown sources with different simulated network conditions. The contestants will demonstrate their machine learning (ML) models using the given data to analyze streaming data and classify the unknown data source, making it usable for first responders.

Walk-on Contestants Option

Up to five Phase 2 submissions from “Walk-on” contestants will receive invitations to participate in the Phase 2 demonstration. Walk-on contestants must meet all eligibility requirements defined in these Official Rules. Walk-on contestants will not receive prize awards associated with Phase 1 during the Phase 2 competition.

Walk-on Contestants: How to Enter and Submission Requirements

- Attest to thoroughly read and agree to comply with the Official Rules, including the Terms and Conditions.
- Attest to viewing recorded webinars for Phase 1 and Phase 2.
- Submit a [concept paper](#).

In the event there are more than five compliant Walk-on submissions, the judging panel will further evaluate the submissions using the [Phase 1 evaluation criterion](#).

Phase 1 Winners Invited to Phase 2: How to Enter

Phase 1 winners must attend or view a recording of the Phase 2 kickoff webinar to receive information on the objectives and timeframe of Phase 2 activities. Each contestant must submit a progress report on or before the deadline specified in the timeline section documenting their progress toward reaching the [competition objectives](#). The competition organizers will review the progress reports; they will not down-select teams (i.e., all Phase 1 winners are invited to demonstrate their algorithms and ML models).

Submission Requirements for Progress Report

The progress report (10 pages max) needs to include:

- Participant's Name (Team, Organization, or Company Name) and list of individual team member(s)
- Any changes to the team and why the changes are necessary
- System design and methodologies on the streaming, analytics, and classification of both known and unknown data
- Description of the two proposed demonstrations on data streaming and the ML model, respectively

Submission Requirements for the Data Demonstration

After an initial evaluation of the progress report, the competition organizers will contact the teams to schedule a live demonstration event on a video conference platform (e.g., Zoom, Microsoft Teams, or Google Meet) during the period shown in the timeline section. Teams may submit an updated progress report one week prior to their demonstration. Each team will have **15 minutes** to present an update on their progress and **30 minutes** to show two demonstrations:

1. Usability of the client-side software for receiving and processing streaming data
2. A machine learning (ML) model to analyze and classify streaming data

Evaluation Criteria

The competition organizers will verify the contestant’s Phase 2 progress report meets the minimum criteria before forwarding the submission to the judging panel. The minimum criteria include:

- Participants meet all eligibility requirements
- The progress report meets all submission requirements

The progress reports will be scored based on the [criteria listed in Table 4 below](#), and the score will be used in judging the demonstrations. After passing compliance, the judging panel makes an independent assessment of each team based on the scoring criteria.

Category		Poor (0-1)	Fair (2-4)	Good (5-7)	Excellent (8-10)	Score
Progress Report	General writing assessment of the progress report	Incomplete	Complete but not well written	Complete and well organized, but with room for improvements	Comprehensive, well organized, and crystal clear	10%
	System design (in Prog. Rpt or in Demo)	Not feasible or with some major issues	Feasible but with some issues	Feasible but lacks innovation	Feasible and innovative	20%
	Methodology	Not suitable or with some major issues	Suitable but with some issues	Suitable and verified to work to some extent	Suitable and verified to work well	20%
	Software implementation	Not usable yet	Usable but with some serious performance issues	Usable but with some performance issues	Usable and efficient	20%
Demonstrations		Not able to show a live demo	Only one of the two required demos is	Both required demos are presented but with some	Both demos are presented successfully	30%

		presented	issues		
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Table 4. Evaluation criteria for phase 2

Judging Process

Individual judges will evaluate the progress reports and demonstrations from the teams that have passed the initial compliance test with the criteria listed in Table 4 and use the Individual Team Evaluation Form (ITEF) to take notes and score each category with the associated weights. The competition organizers will ensure that each team is reviewed by all judges. The judging panel will use the Cumulative Evaluation Form (CEF) to assess teams and rank them based on the scores. The judging panel will vote between tied teams.

PHASE 3: EVALUATION AND LIVE COMPETITION AT DISASTER CITY

Description

Early in Phase 3, the competition organizers will provide streaming data from different types of virtual sensors to simulate the scenarios of the final event. The organizers will provide the streaming data through the same interface as those to be used at the final event. All contestant teams need to demonstrate that their software implementation can successfully receive and process the streaming data. Before preparing for the final event, there will be an interim evaluation step through which the contestants will receive feedback to improve their solutions. There will be no downselection for this evaluation. Contestants are expected to address the points made by the judges before the final event.

The competition organizers invite the Phase 3 contestants to Disaster City to participate in the final event. Located in College Station, Texas, Disaster City is a 52-acre training facility adjacent to the Texas A&M Engineering Extension Service (TEEX) Brayton Fire Training Field. The site delivers the full array of skills and techniques needed by today's emergency response professionals.

Final Event Description

The earthquake at City X has resulted in severe damage to the area. Most buildings are damaged, and an unknown number of people remain missing and possibly trapped in structures. Fires continue to start around the area. Power and communications are intermittent. First responders are on scene, and an initial Emergency Operations Center (EOC) is standing up to coordinate rescue operations.

The area is considered a Smart City with public and private sensors throughout the area. Many first responders are equipped with personal monitoring and location devices. The EOC is collecting and disseminating information from multiple sources to and from on scene. The sensor data collection area is approximately 15 acres.

How to Enter

All Phase 2 winners are invited to Phase 3 and have the opportunity to develop their solutions. Contestants must attend or view a recording of the Phase 3 kickoff webinar to receive information on the objectives and timeframe of Phase 3 activities (dates to be announced when the Phase starts). Each team must submit a progress report through the US-Ignite website on or before the Phase 3 Interim Evaluation deadline. Through the interim evaluation step, the teams test their models and receive feedback from subject matter experts to help address their system's shortcomings before the final event.

Submission Requirements

1. Progress report (10 pages)

- Participant's Name (Team, Organization, or Company Name) and list of individual team member(s)
- Any changes to the team and why the changes are necessary.
- System design and methodologies on the streaming, analytics, and classification of both known and unknown data
- Detailed description of the demonstration in preparation for the final event, i.e., how the system will be utilized to help first responders in the emergency scenario in the final event.

- Participants are required to sign a TEEEX waiver document for the final event at the Disaster City.

After reviewing the progress reports, the organizers will contact the teams to schedule a live information and evaluation session to help contestants improve the solution and prepare for the final event. There will be no downselection for this evaluation session, but the progress reports will be evaluated and considered for the scoring of the final event.

Contestants invited to compete in Phase III will be given a TEEEX safety briefing regarding on site activities and will be required to sign a waiver prior to the competition.

2. Final report (15 pages)

- Participant’s Name (Team, Organization, or Company Name) and list of individual team member(s)
- Introduction and background information
- System design and methodologies on the streaming, analytics, and classification of both known and unknown data
- Software implementation and testing
- Sensors and data used
- Open-source software used
- Final demonstration of the team's solution

Evaluation Criteria

At the final event, the judging panel makes an independent assessment of each team's performance based on the scoring [criteria listed in Table 5 below](#).

Category	Poor (0-1)	Fair (2-4)	Good (5-7)	Excellent (8-10)	Score
Progress report	Incomplete	Complete but not well written	Complete and well organized, but with room for improvements	Complete, well organized, and crystal clear	10%
Final report	Incomplete	Complete but not well written	Complete and well organized, but with room for	Complete, well organized, and crystal clear	10%

			improvements		
Percentage of correctly classified unknown streaming data sources	<20%	20-49%	50-79%	80-100%	20%
Quality of the processed unknown data for first responders	Not usable	Usable but with some serious issues	Usable but needs some extra transformation	Usable directly	20%
Demonstration	Not able to show a live demo	Shown with major problems	Shown with minor problems	Successful with no issues	30%
Presentation and Q&A	Not well prepared	Well organized with major problems in the presentation	Well organized with minor problems in the presentation	Well organized and clearly presented	10%

Table 5. Evaluation criteria for phase 3

Judging Process

Individual judges will evaluate the work from the teams that have passed the initial compliance test with the criteria listed in Table 5 and use the Individual Team Evaluation Form (ITEF) to take notes and score each category with the associated weights. Each team will be reviewed by all judges. The judging panel will use the Cumulative Evaluation Form (CEF) to assess teams and rank them based on the scores. The judging panel will vote between tied teams.

TERMS AND CONDITIONS

Eligibility Requirements

A contestant (whether an individual, private entity, or team (“contestant” herein) must have registered to participate and complied with all of the requirements under Section 105 of the America COMPETES Reauthorization Act of 2010 (Pub. L. No. 111-358), as amended by Section 401 of the American Innovation and Competitiveness Act of 2016

(Pub. L. No. 114-329) and codified in 15 U.S.C. §3719 (hereinafter “America COMPETES Act” or “15 U.S.C. §3719”) as contained herein.

A contestant who registers or submits an entry (whether an individual, private entity, or team, or anyone acting on behalf of a private entity or team) to participate in this challenge represents that they have read, understood and agree to all terms and conditions of the Official Rules.

To be eligible to win a cash prize, a contestant must register as an individual, private entity, or team as defined below:

- Individual: a person age 18 years or older at time of entry and a U.S. citizen or permanent resident of the United States or its territories.
- Private Entity: a company, institution, or other organization that is incorporated in and maintains a primary place of business in the United States or its territories.
- Team: a group of individuals or a group of private entities, with at least one member of the team meeting the definition for either Individual or Private Entity.
- Contestants not eligible for cash prizes: a contestant that enters the challenge without the ability to claim a cash prize based on the eligibility requirements above. Contestants not eligible for cash prizes must be 18 years or older at time of entry and cannot be individuals on the denied persons list nor from entities or countries sanctioned by the United States Government.

For all Contestants, general eligibility requirements include:

- Contestants may not be a Federal entity or Federal employee acting within the scope of their employment.
- Contestants may not be a NIST employee.
- Contestants may not be a TAMU employee except those in valid student status.
- Contestants may not be a competition partner employee.
- Non-NIST Federal employees acting in their personal capacities should consult with their respective agency ethics officials to determine whether their participation in this challenge is permissible. A contestant shall not be deemed ineligible because the individual or entity used Federal facilities or consulted with Federal employees during this challenge if the Federal employees and facilities are made available to all contestants on an equitable basis.

- Contestants may not be a NIST contractor or associate, or private entity providing services to NIST acting within the scope of their contract, employment, or funding or acquisition agreement with NIST which would involve the use of NIST funding to support a contestant's participation in the challenge.
- Contestants may not be individuals or private entities which provide program support services to NIST including strategic planning, project / program management, communications, reporting, program evaluation, or other similar services to NIST.
- Individuals who are former NIST Federal Employees or NIST Associates are not eligible to enter as an individual or member of a team for 365 days from their last date of paid employment or association with NIST with the exception of individuals in a student internship, experiential learning, or similar temporary employment status.
- Any individuals (including an individual's parent, spouse, or child) or private entities involved with the design, production, execution, distribution or evaluation of the challenge are not eligible to enter as an individual or member of a team.
- A contestant (whether participating as an individual, private entity, or member of a team) must not have been convicted of a felony criminal violation under any Federal law within the preceding 24 months and must not have any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.
- Contestants must not be suspended, debarred, or otherwise excluded from doing business with the Federal Government.
- Contestants must not be citizens or permanent residents of countries sanctioned by the United States Government.
- Contestants invited to compete in Phase III will be given a TEEX safety briefing regarding on site activities and will be required to sign a waiver prior to the competition.

Official Representatives

At the time of entry, all contestants must designate one individual to serve as their Official Representative and one individual to serve as an alternate to assume the role and requirements of the Official Representative if, and only if, the first individual has resigned from their role as Official Representative or has failed to respond to NIST and Texas A&M University communications for a period of 30 consecutive days. The Official Representative will be the only individual with the authority to officially interact and communicate with NIST and Texas A&M University regarding the contestant-created materials, completion of tasks as part of the challenge, signing official documentation related to the challenge, providing information to process prize payments, and any other administrative requests related to the challenge.

The eligibility of a contestant is determined by the contestant's registration status (individual, private entity or team) as defined above – the Official Representative does not determine the contestant's eligibility.

- For individual contestants, by default the Official Representative must be the individual.
- For private entity contestants, the Official Representative can be any individual designated by the private entity.
- For a team contestant:
 - If the team is composed of individuals, the Official Representative must be a team member who individually meets the eligibility requirements of an individual contestant.
 - If the team is composed of private entities, the Official Representative can be any individual designated by the private entity leading the team.
 - If the team is composed of a mix of individuals and private entities, the Official Representative, designated by the team, can be any qualified individual meeting the requirements of an individual or member of a private entity.

The Official Representative will be authorized to interact with NIST and Texas A&M University and be responsible for meeting all entry, evaluation, and administrative requirements of the challenge.

If in the event a contestant decides to withdraw their submission from consideration, the Official Representative must notify Texas A&M University in writing of their decision.

If a contestant (whether an individual, private entity, or team) is selected as a prize winner, Texas A&M University will award a single dollar amount to the account named in the standard form 3881 (ACH Vendor/Miscellaneous Payment Enrollment Form) by the Official Representative. The named account must belong to an individual or private entity as defined above in the eligibility requirements for individual or private entity.

On behalf of the team as defined above, the Official Representative shall be solely responsible for allocating any prize amount among the members of the team. NIST, Texas A&M University, and US-Ignite will not arbitrate, intervene, advise on, or resolve any matters between team members.

Submission Requirements

In order for submissions to be eligible for review, recognition and award, contestants must meet the following requirements:

- Deadline - The submission must be available for evaluation by the end date noted in the Timeline section of these rules.
- Each submission must be original, the work of the contestant, and must not infringe, misappropriate or otherwise violate any intellectual property rights, privacy rights, or any other rights of any person or entity.
- It is an express condition of submission and eligibility that each contestant warrants and represents that the contestant's submission is solely owned by the contestant, that the submission is wholly original with the contestant, and that no other party has any ownership rights or ownership interest in the submission. The contestant must disclose if they are subject to any obligation to assign intellectual property rights to parties other than the contestant, if the contestant is licensing or, through any other legal instrument, utilizing intellectual property of another party.
- Each contestant further represents and warrants to Texas A&M University that the submission and any use thereof by NIST and Texas A&M University shall not: (i) be defamatory or libelous in any manner toward any person, (ii) constitute or result in any misappropriation or other violation of any person's publicity rights or right of privacy, or (iii) infringe, misappropriate or otherwise violate any intellectual property rights, privacy rights or any other rights of any person or entity.
- Each submission must be in English.
- The concept paper must be in a commonly accessible and unlocked form such as: Microsoft Word document (DOC/DOCX) or PDF. Supplementary materials could be in the form of PowerPoint, Excel, Video, Audio, or links to online

platforms (YouTube, Vimeo, Google play store, website, etc. with the caveat that, as part of the submission, the content is made freely accessible to Texas A&M University and US-Ignite for evaluation and judging).

Submissions containing any matter which, in the sole discretion of NIST or the Texas A&M University, is indecent, obscene, defamatory, libelous, in bad taste, which demonstrates a lack of respect for public morals or conduct, which promotes discrimination in any form, which shows unlawful acts being performed, which is slanderous or libelous, or which adversely affects the reputation of NIST or the competition organizers, will not be accepted, and will not be evaluated or considered for an award. The competition organizers shall have the right to remove any content from the challenge website in its sole discretion at any time and for any reason, including, but not limited to, any online comment or posting related to the challenge.

If NIST, Texas A&M University, or US-Ignite, in its sole discretion, find any submission to be unacceptable, then such submission shall be deemed disqualified.

Submission Rights

Any applicable intellectual property rights to a submission will remain with the contestant. The contestant is not granting any rights in any patents, pending patent applications, or copyrights related to the technology described in the entry. However, by submitting a challenge submission, the contestant is granting the Department of Commerce, National Institute of Standards and Technology certain limited rights as set forth herein.

- The contestant grants to the Department of Commerce, National Institute of Standards and Technology, Texas A&M University and US-Ignite the right to review the submission, to describe the submission in any materials created in connection with this challenge, and to screen and evaluate the submission, and to have the judges, challenge administrators, and the designees of any of them, review the submission. The Department of Commerce, National Institute of Standards and Technology, Texas A&M University, and US-Ignite, will also have the right to publicize contestant's name and, as applicable, the names of contestant's team members and/or organization which participated in the submission following the conclusion of the challenge.
- You grant to NIST, Texas A&M University, and US-Ignite the right to include your name and your company or institution name and logo (if your entry is from a company or institution) as a participant on the challenge website and in materials

from NIST, Texas A&M University, and US-Ignite, announcing winners, finalists or participants in the challenge. Other than these uses or as otherwise set forth herein, you are not granting NIST, Texas A&M University, or US-Ignite any rights to your trademarks.

- The contestant grants the Department of Commerce, National Institute of Standards and Technology, Texas A&M University, and US-Ignite a royalty-free, non-exclusive, irrevocable, worldwide license to display publicly and use for promotional purposes the contestant's entry ("demonstration license"). This demonstration license includes posting or linking to the contestant's entry on the Department of Commerce, National Institute of Standards and Technology websites, including the challenge website and inclusion of the contestant's submission in any other media, worldwide.
- Any data generated in the evaluation of contestant submissions is the property of the Department of Commerce, National Institute of Standards and Technology. The contestants, reviewers, and judges involved in the evaluation acknowledge and agree that Texas A&M University will own this evaluation data and share it with NIST, and that the evaluation data created can be used in future research and development activities. To the extent that NIST and Texas A&M University are able to, NIST and Texas A&M University will anonymize for research purposes, whether it is used internally or published, any such data and will not include any contestant's, reviewer's, or judge's personally identifiable information. The contestant acknowledges and agrees that the data generated through evaluation of submissions may be used by NIST and Texas A&M University for future research related to the challenge.

No Endorsement

The contestants agree that nothing in these Official Rules grant a right or license to use any names or logos of NIST or PSCR, or any other intellectual property or proprietary rights of NIST or PSCR or their employees or contractors.

Warranties

Each contestant represents and warrants that the contestant is the sole author and copyright owner of the submission; that the submission is an original work of the contestant; and that the contestant has acquired sufficient rights to use and to authorize

others, including the National Institute of Standards and Technology, Texas A&M University, and US-Ignite to use the submission, as specified throughout the Official Rules, that the submission does not infringe upon any copyright or upon any other third party rights of which the contestant is aware; and that the submission is free of malware.

The contestant represents and warrants that all information submitted is true and complete to the best of the contestant's knowledge, that the contestant has the right and authority to submit the entry on the contestant's own behalf or on behalf of the persons and entities that the contestant specifies within the entry, and that the entry (both the information and materials submitted in the entry and the underlying technology/method/idea/treatment protocol/solution described in the entry):

- Is the contestant's own original work, or is submitted by permission with full and proper credit given within the entry;
- Does not contain proprietary or confidential information or trade secrets (the contestant's or anyone else's);
- Does not knowingly violate or infringe upon the patent rights, industrial design rights, copyrights, trademarks, rights in technical data, rights of privacy, publicity or other intellectual property or other rights of any person or entity;
- Does not contain malicious code, such as viruses, malware, timebombs, cancelbots, worms, Trojan horses or other potentially harmful programs or other material or information;
- Does not and will not violate any applicable law, statute, ordinance, rule or regulation, including, without limitation, United States export laws and regulations, including but not limited to, the International Traffic in Arms Regulations and the Department of Commerce Export Regulations; and
- Does not trigger any reporting or royalty or other obligation to any third party.

Tie Breaking Options

In the event of a tie between contestants for Phase 3 placement awards, the judges will review the evaluations of the contestant submissions to assess if there is a means based on the evaluation data to differentiate the submissions to break the tie. If the submissions cannot be differentiated to break the tie based on the evaluation data, the contestants shall split equally the combined prize amounts of the tie (for example: a tie for 1st place, where the 1st place prize is \$30,000 and the 2nd place prize is \$20,000 will result in the two contestants each being awarded \$25,000 (equaling (\$30,000 +

\$20,000)/2). If this tie breaking provision is applied, the tied contestants will share the highest-placed prize and the next lower place prize will be “skipped” (for example 1st, 1st, 3rd, etc.). This tie breaking provision will be applied to all ties, involving two or more contestants. In resolving all ties, the total cumulative value of prizes awarded will not change.

No Confidential Information

Each contestant agrees and warrants that no part of its submission includes any trade secret information, ideas or products, including but not limited to information, ideas or products within the scope of the Trade Secrets Act, 18 U.S.C. § 1905. All submissions to this prize challenge are deemed non-proprietary. Since NIST will not accept or hold any submitted materials “in confidence” it is agreed that, with respect to the contestant’s entry, no confidential or fiduciary relationship or obligation of secrecy is established between NIST, Texas A&M University, US-Ignite and the contestant, the contestant’s team, or the company or institution the contestant represents when submitting an entry, or any other person or entity associated with any part of the contestant’s entry.

Judging Panel

The submissions will be judged by a panel of qualified expert(s) appointed by NIST. The panel consists of experts from within and outside of NIST who will judge the submissions according to the judging criteria identified above in order to select winners. Judges will not (A) have personal or financial interests in, or be an employee, officer, director, or agent of any entity that is a registered contestant in a challenge; or (B) have a familial or financial relationship with an individual who is a registered contestant.

The decisions of the Judging panel for the contest will be announced in accordance with the dates noted in these rules. The competition organizers will not make contestant’s evaluation results from the Judging panel available to contestants or the public.

Verification of Potential Winners

ALL POTENTIAL CHALLENGE WINNERS WILL BE SUBJECT TO VERIFICATION OF IDENTITY, QUALIFICATIONS AND ROLE IN THE CREATION OF THE SUBMISSION BY TEXAS A&M UNIVERSITY.

Contestants must comply with all terms and conditions of the Official Rules. Winning a prize is contingent upon fulfilling all requirements contained herein. The potential winners will be notified by email, telephone, or mail after the date of winning results. Each potential winner of a monetary or non-monetary award will be required to sign and return to the competition organizers within ten (10) calendar days of the date the notice is sent, an ACH Vendor/Miscellaneous Enrollment Form (OMB NO. 1510-0056) and a Contestant Eligibility Verification form in order to claim the prize.

In the sole discretion of the competition organizers, a potential winner will be deemed ineligible to win if: (i) the person/entity cannot be contacted; (ii) the person/entity fails to sign and return an ACH Vendor/Miscellaneous Enrollment Form (OMB NO. 1510-0056) and a Contestant Eligibility Verification form within the required time period; (iii) the prize or prize notification is returned as undeliverable; or (iv) the submission or person/entity is disqualified for any other reason. In the event that a potential or announced winner is found to be ineligible or is disqualified for any reason, the competition organizers, in their sole discretion, may award the prize to another contestant.

Winners Not Eligible for Cash Prizes

Winners who are found to be ineligible for cash prizes may still be publicly recognized. In the event that the prize award normally allotted to the place or rank of an ineligible winner occurs, the cash prize will be awarded to the next eligible winner in the series or ranking. Throughout the challenge, winners who are ineligible for cash prizes will continue to have opportunities to have their work viewed and appreciated by stakeholders from industry, government and academic communities.

Additional Terms and Conditions

This document outlines the Official Rules for Smart Communities, Smart Responders, An Artificial Intelligence for Internet of Things Prize Competition (AI3 Prize Competition). Nothing within this document or in any documents supporting the AI3 Prize Competition shall be construed as obligating the Department of Commerce, NIST or any other Federal agency or instrumentality to any expenditure of appropriated funds, or any obligation or expenditure of funds in excess of or in advance of available appropriations.

Challenge Subject to Applicable Law

All challenge phases are subject to all applicable federal laws and regulations. Participation constitutes each contestant's full and unconditional agreement to these Official Rules and administrative decisions, which are final and binding in all matters related to the challenge. Eligibility for a prize award is contingent upon fulfilling all requirements set forth herein. This notice is not an obligation of funds; the final award of prizes is contingent upon the availability of appropriations.

Participation is subject to all U.S. federal, state and local laws and regulations. Contestants are responsible for checking applicable laws and regulations in their jurisdiction(s) before participating in the prize challenge to ensure that their participation is legal. The Department of Commerce, National Institute of Standards and Technology shall not, by virtue of funding this prize challenge, be responsible for compliance by Contestants in the prize challenge with Federal Law including licensing, export control, and nonproliferation laws, and related regulations. Individuals entering on behalf of or representing a company, institution or other legal entity are responsible for confirming that their entry does not violate any policies of that company, institution or legal entity.

Resolution of Disputes

The TAMU and US-Ignite are solely responsible for administrative decisions, which are final and binding in all matters related to the challenge.

In the event of a dispute as to any registration, the authorized account holder of the email address used to register will be deemed to be the contestant. The "authorized account holder" is the natural person or legal entity assigned an email address by an Internet access provider, online service provider or other organization responsible for assigning email addresses for the domain associated with the submitted address. Contestants and potential winners may be required to show proof of being the authorized account holder.

Publicity

The winners of these prizes (collectively, "Winners") will be featured on the National Institute of Standards and Technology website, newsletters, social media, and other outreach materials.

Except where prohibited, participation in the Challenge constitutes each winner's consent to the National Institute of Standards and Technology's, and its agents' use of each winner's name, likeness, photograph, voice, opinions, and/or hometown and state information for promotional purposes through any form of media, worldwide, without further permission, payment or consideration.

Payments

The prize challenge winners will be paid prizes directly from the competition host. Prior to payment, winners will be required to verify eligibility. The verification process with the organizers includes providing the full legal name, tax identification number or social security number, routing number and banking account to which the prize money can be deposited directly.

All cash prizes to Contestants by the competition host are subject to tax liabilities, and no withholding will be assessed by the organizers on behalf of the Contestant claiming a cash prize.

Liability

Any and all information provided by or obtained from the Federal Government, Texas A&M University, or its subcontractors (including US-Ignite and Texas A&M Engineering Extension Service) is without any warranty or representation whatsoever, including but not limited to its suitability for any particular purpose. Upon registration, all contestants agree to assume and, thereby, have assumed any and all risks of injury or loss in connection with or in any way arising from participation in this challenge, development of any application or the use of any application by the contestants or any third-party. Upon registration, except in the case of willful misconduct, all contestants agree to and, thereby, do waive and release any and all claims or causes of action against the Federal Government, Texas A&M University, its subcontractors, and their officers, employees and agents for any and all injury, death, damage, or loss of property, revenue, or profits of any nature whatsoever (whether existing or thereafter arising, whether direct, indirect, or consequential and whether foreseeable or not), arising from their participation in the challenge, whether the claim or cause of action arises under contract, tort, or loss through negligence or otherwise. Upon registration, all contestants agree to and, thereby, shall indemnify and hold harmless the Federal Government, Texas A&M University, its subcontractors, and their officers, employees and agents for any and all injury, death, and damage of any nature and against third party claims for damages arising from or related to Challenge activities.

Insurance

Contestants are not required to obtain liability insurance for this Prize Challenge.

Records Retention/FOIA

All materials submitted to the Regents of Texas A&M University as part of submission become official records and cannot be returned. Any confidential commercial information contained in a submission should be designated at the time of submission. Submitters will be notified of any Federal Freedom of Information Act (in accordance with 29 C.F.R. § 70.26) or Texas Public Information Act (in accordance with Texas Government Code Chapter 552) requests.

Privacy Advisory

The US Ignite and Texas A&M websites are not services of NIST. The solicitation and collection of your personal or individually identifiable information is subject to the hosts' privacy and security policies and will not be shared with NIST unless you win the Challenge. Challenge winners' personally identifiable information must be made available to NIST in order to collect an award.

508 Compliance

Contestants should keep in mind that the National Institute of Standards and Technology and Texas A&M University consider universal access to information a priority for all individuals, including individuals with disabilities. The organizations are strongly committed to meeting their compliance obligations under Section 508 of the Rehabilitation Act of 1973, as amended, to ensure the accessibility of its programs and activities to individuals with disabilities. This obligation includes acquiring accessible electronic and information technology. When evaluating submissions for this challenge, the extent to which a submission complies with the requirements for accessible technology required by Section 508 will be considered.

General Conditions

All challenge and prize competitions shall be performed in accordance with the America COMPETES Act. The National Institute of Standards and Technology and Texas A&M University reserve the right to cancel, suspend, and/or modify the challenge, or any part of it, if any fraud, technical failures, or any other factor beyond the National Institute of

Standards and Technology and Texas A&M University's reasonable control impairs the integrity or proper functioning of the challenge, as determined by the National Institute of Standards and Technology and Texas A&M University in their sole discretion. The National Institute of Standards and Technology and Texas A&M University are not responsible for, nor are they required to count, incomplete, late, misdirected, damaged, unlawful, or illicit votes, including those secured through payment or achieved through automated means. Texas A&M University reserves the right in its sole discretion to extend or modify the dates of the challenge, and to change the terms set forth herein governing any phases taking place after the effective date of any such change. You agree to the terms set forth herein and to all decisions of NIST or IU and/or all of their respective agents, which are final and binding in all respects. ALL DECISIONS BY the National Institute of Standards and Technology and Texas A&M University ARE FINAL AND BINDING IN ALL MATTERS RELATED TO THE CHALLENGE.