**\*url**:

http://www.ninesights.com/community/nfl-ge-grand-challenge/about#/purpose

**\*title**:

Head Health Challenge II

**\*tag\_line**:

Innovative Approaches For Preventing and Identifying Brain Injuries

**\*summary**:

**\*rules**:

The NFL, Under Armour, and GE will assess the proposals using the following **Assessment Criteria**:

**General Criteria**

 Case studies showing performance data and accuracy results on other applications

 High-level description of the benefits, methods, and techniques

 Description of ongoing research/development  Proposed program plan on how they will apply

the technology to this topic  Relevant background on the team /organization

/lab submitting the response  Technologies that can demonstrate proof of

concept within 1 - 2 years are preferred. However, game changing technologies will be strongly considered if good progress towards proof of concept and utility can be shown within 1 - 2 years

**Monitoring and Identifying Trauma**

The proposals must provide clear potential to advance current practices in measuring and detecting injury and head impact exposures, including non-linear impacts. These technologies include but are not limited to:

 Monitoring and integration of directional and rotational impact force into data

 Monitoring biomechanical, biologic, or physiological responses to detect injury & quantify head impact exposures



Efficiently collecting, interpreting and organizing real-time data

○ Can be used on the sidelines as first indicators of presence or absence of brain trauma

○ Can track over time the value of interventions to prevent or mitigate injury

○ Can identify dangerous play-types to guide sports organizations toward improved playing rules

Offices: Cleveland - USA, Tokyo - Japan, Leuven - Belgium www.ninesigma.com

**Protection Against Injury or its Consequences**

Technologies that can improve the level of protection offered against head impacts. These proposals may involve materials, protective systems and equipment that include, but are not limited to the following:

 Materials or devices that can absorb, distribute and/or dissipate the force of impact. These include smart or active materials

○ Polymers that are comfortable but can adapt to sudden impacts

○ Equipment that reduces the force of direct impact transmitted to the brain (e.g. transfer load distribution to torso/lower body)

○ Equipment to control axial rotation of the head

○ Novel uniforms and protective padding systems to dissipate excessive force

○ Improve effective mass by linking the head and neck as a total system to reduce head acceleration and minimize the mechanical effect on the brain

**Training**

In addition to protection against and monitoring of brain injury, proposals could include training athletes and others to protect themselves from brain injury. Ideas could include:

 Sensors that provide biofeedback to modify behaviors that predispose athletes to injury or its consequences

 Improved training methods that reduce tissue and brain damage such as:

○ ○

Novel conditioning regimens Neck isolation and strengthening protocols

**\*eligibility**:

**\*fee**:

**\*numeric\_value**:

10000000

**\*index\_deadline**:

January 30, 2014

**\*awards\_attributes**:

**\*\*value**:

**\*\*description**:

**\*deadlines\_attributes**:

**\*\*date**:

**\*\*description**:

**\*post\_date**:

**\*image\_url**:

**\*sponsor**:

**\*contact\_info**:

**Alfred T. Malouf, Ph.D.**

**\*status**:

active

\***image\_topic:**

**\*topic**:

**\*structure**:

**\*resultant**:

**\*xpath\_check**:

**\*url**:

http://uasaoc.org/

**\*title**:

Unmanned Aircraft Systems Airspace Operations Challenge

**\*tag\_line**:

Demonstrating UAS technology and capabilities that are critical to national airspace.

**\*summary**:

The NASA Centennial Challenge Program is designed to foster individual, academic, and private sector innovation to solve difficult problems that are important to NASA and the nation. The Unmanned Aircraft Systems (UAS) Airspace Operations Challenge (AOC) is focused on demonstrations of some of the key technologies that will make integration of UAS into the National Airspace System (NAS) possible. Before unpiloted or remotely piloted aircraft can safely operate in the same airspace as other, piloted aircraft, the robotic aircraft and their operators will need to demonstrate a high level of operational robustness as well as the ability to “detect and avoid” other air traffic.

**\*rules**:

The competition will be completed in two phases. Competing aircraft must be able to demonstrate safe operations in a complex air traffic environment within a confined (geo-fenced) region of the test airspace in the presence of both cooperative and uncooperative unmanned aircraft. Cooperative aircraft will transmit ADS-B signals. The competition vehicle must be able to detect and avoid cooperative aircraft by interpreting ADS-B transmissions and must maintain proper separation from cooperative aircraft at all times. Competing aircraft should also be able to detect uncooperative aircraft that may not be transmitting ADS-B but will not be required to maintain separation in the Phase 1 competition.

The Phase 1 Competition will focus on a competitor’s ability to operate a robotic aircraft that can:

- Fly 4-Dimensional Trajectories (4DT)

- Employ onboard ADS-B IN

- Detect & Avoid cooperative air traffic

- Operate safely in a number of contingency situations

- Bonus points for detecting and tracking uncooperative air traffic

The Phase 2 Competition will extend the requirements in each of the Phase 1 areas as well as add new requirements:

- Employ onboard ADS-B IN and OUT

- Detect & Avoid cooperative & uncooperative air traffic

- Have onboard systems capable of communicating verbally with Air Traffic Control (ATC and surrounding air traffic in lost link situations

Specific details are listed here: <http://uasaoc.org/MEDIA/2014_UAS_AOC_Rules_Final.pdf>

**\*eligibility**:

Eligibility requirements are listed in the Team Agreement (http://uasaoc.org/MEDIA/2014\_UAS\_AOC\_Team\_Agreement\_Final.pdf)

**\*fee**:

A registration fee of $7,000 will be offered to those TEAMS whose completed AGREEMENT and fee is delivered to DPI at 40 N. Main Street, Suite 900, Dayton, Ohio 45431, between November 16, 2013 through and until midnight EST December 31, 2013.

A “Late” registration fee of $9,000 will be offered to those TEAMS whose completed AGREEMENT and fee is delivered to DPI at 40 N. Main Street, Suite 900, Dayton, Ohio 45431, between January 1, 2013 to March 31, 2014. Registration closes at midnight EST on March 31st, 2014.

**\*numeric\_value**:

**\*index\_deadline**:

Mar 31, 2014

**\*awards\_attributes**:

**\*\*value**:

**\*\*description**:

**\*deadlines\_attributes**:

**\*\*date**: Dec 31, 2013

**\*\*description**: Registration

**\*\*date**: Mar 31, 2014

**\*\*description**: Late Registration

**\*\*date**: April 28 2014

**\*\*description**: Challenge Execution Week

**\*post\_date**:

November, 2013

**\*image\_url**:

http://forum.uasaoc.org/forumlogo.jpg

**\*sponsor**:

NASA, UAS Center & Test Complex, Write State Research Institiue, Universal Technology Corporation, National Center for Complex Operations, Indiana State University, CAMO LLC, Dayton Development Coalition.

**\*contact\_info**:

TEAM AGREEMENT & SPONSORSHIP:

Chris Ford

Vice President, Defense Programs

Dayton Development Coalition

Phone: (937) 723-2048

RANGE CAPABILITIES & EVENT MANAGEMENT:

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Director

UAS Center & Test Complex

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AIR VEHICLE SAFETY:

Richard Baker

Director, Center for the Unmanned Systems & Human Capital Development

Indiana State University

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EVENT RULES & EXECUTION PLANNING:

Kurt Rinke

Event Management

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NASA PROJECT MANAGER:

Garry Qualls

Project Manager

NASA LaRC

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Meeting Coordinator

Universal Technology Corporation

Phone: (937) 426-2808

WEBSITE:

Samantha Barnett

Webmaster

Universal Technology Corporation

Phone: (937) 426-2808

**\*status**:

active

\***image\_topic:**

Technology

**\*topic**:

Technology, UAV, AI

**\*structure**:

Competition, Two Phase

**\*resultant**:

Product is created, Teams own IP,

**\*xpath\_check**:

<http://uasaoc.org/MEDIA/2014_UAS_AOC_Team_Agreement_Final.pdf>

<http://uasaoc.org/MEDIA/2014_UAS_AOC_Rules_Final.pdf>

**\*url**:

http://wp.wpi.edu/challenge/

**\*title**:

[Sample Return Robot Challenge](http://wp.wpi.edu/challenge/2013/06/10/sample-return-robot-challenge-recap/)

**\*tag\_line**:

Autonomous robot systems that can find and collect samples of interest in a 20-acre area without any human interaction

**\*summary**:

The objective of the Sample Return Robot Challenge is to develop new technologies or apply existing technologies in unique ways to create robots that can autonomously seek out samples and return to a designated point in a set time period. Robots will be required to navigate over unknown terrain, around obstacles, and in varied lighting conditions to identify, retrieve, and return these samples

**\*rules**:

The competition is conducted in 2 phases:

1. Level 1 Competition – Robot demonstrates the ability to retrieve a sample within a 30-minute time limit

2. Level 2 Competition – Robot demonstrates the ability to retrieve two samples minimum within a two hour limit. Samples are categorized as Easy, Intermediate and Hard with higher point values given for samples classified as hard.

Rules for the Challenge are listed here:

http://wp.wpi.edu/challenge/files/2013/08/NASACC\_Rules\_2014\_FINAL\_withFAQ2.pdf

**\*eligibility**:

All teams are welcome to participate, but only US teams who meet the criteria outlined in the Team Agreement are eligible to win the $1.495M in prize money outlined in the competition rules. However, all officially registered teams who meet the deadlines set forth in the rules and Team Agreements will be eligible for the Technology Achievement Awards described in the competition rules.

**\*fee**:

There is an entry fee associated with this Challenge.

**\*numeric\_value**:

1495000

**\*index\_deadline**:

January 7, 2014

**\*awards\_attributes**:

**\*\*value**:

Up to $5,000

**\*\*description**:

For Level 1:

All teams who successfully complete Level 1 will split $50,000, with a maximum of $5,000 per team. Prize money distributed in Level 1 becomes unavailable to be distributed for Level 2 prizes (i.e. they come from the same pool of $1.495M).

**\*\*value**:

(see details)

**\*\*description**:

For Level 2: Total Prize Purse is $1,495,000 with awards ranging from $100,000 to $1,495,000 depending on the amount of points scored.

**\*deadlines\_attributes**:

**\*\*date**:

Jan 7, 2014

**\*\*description**:

Registration deadline. Any team wishing to register after this point is subject to approval by the judge committee. To complete registration, teams must accurately fill out the online registration form and team bio information, complete a team agreement listing all team members (physical copy required to be received by WPI), and payment must be received.

**\*\*date**:

Mar 18, 2014

**\*\*description**:

Late registration deadline: Any teams registering after this date will be directed by judges for the proposal deadline on a case-by-case basis.

**\*post\_date**:

Aug 15, 2013

**\*image\_url**:

http://wp.wpi.edu/challenge/wp-content/themes/wpitheme/images/new/wpi-logo.gif

**\*sponsor**:

NASA, Worchester Polytechnic Institute

**\*contact\_info**:

Website has contact interface for this challenge:

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Colleen Shaver

colleen@wpi.edu, (508) 831-6750

WPI Public Affairs

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ebmell@wpi.edu

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Sam Ortega

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NASA Public Affairs

Janet Anderson

janet.l.anderson@nasa,gov

**\*status**:

active

\***image\_topic:**

Technology

**\*topic**:

Technology

**\*structure**:

Course Competition, Annual

**\*resultant**:

Technology

**\*xpath\_check**:

http://wp.wpi.edu/challenge/files/2013/08/NASACC\_Rules\_2014\_FINAL\_withFAQ2.pdf

**\*url**:

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**\*tag\_line**:

**\*summary**:

**\*rules**:

**\*eligibility**:

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**\*\*description**:

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**\*contact\_info**:

**Alfred T. Malouf, Ph.D.**

**\*status**:

active

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**\*contact\_info**:

**Alfred T. Malouf, Ph.D.**

**\*status**:

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