The OH/IN UAS Center is a collaboration between the states of Ohio and Indiana established in 2013 by Governors John Kasich and Mike Pence.

Overall mission of the UAS Center: Create, Collaborate, and Fly
- Catalyst for UAS Commercialization – Create, Opening airspace
- Universities and Colleges, small business, service provider, R & D – Collaborate
- Direct support to State & Federal Partners for UAS Research, Development, Test & Evaluation (RDT&E) and Operations – Fly

These activities will enhance economic development and place Ohio in a leadership role as the FAA integrates UAS into the National Airspace System.
What is a UAS?

- UAS stands for Unmanned Aircraft System
- Remote Pilot – Individual on the flight controls
- Visual Observer – Individual that maintains visual contact with the aircraft (not required)
- Control station - Where individual or individuals monitor what’s going on with the aircraft such as telemetry, sensor activity, and data recovery
What is a UAS?

Aircraft

Sensor

Data

Knowledge Delivery = Value Proposition
Mapping & Survey Opportunity

Early Capabilities
- Inspect infrastructure
- Survey construction projects
- Monitor tree harvest/poaching
- Monitor drilling sites compliance
- Excavation monitoring
- Project monitoring & assessment
- Assess water quality & effluence
- Track invasive species
- Inspect amusement park rides
- Property Survey and monitoring

Early Collaborations
- ODOT
- ODNR
- ODA
- Woolpert
- Merrill
- Cleveland Metro Parks
- Survey & Mapping Inc.
Precision Agriculture

Early Capabilities

- Crop Assessment
- Blight detection
- Track invasive insect species
- Precision Insecticide control
- Precision fertilization
- Moisture detection
- Harvest-ready detection
- Yield Estimates
- Insurance Evidence

Early Collaborations

- ODA
- AFRL
- OSU
- Multiple Industry Partners
- Sinclair CC
- Southern CC
- Clark State CC
First Responder/Fire/Police

Early Capabilities
- Document Crime Scene/Disaster Area
- Establish Event Situational Awareness
- Document Accident
- Monitor traffic flow/alternative routes
- Restore Communications
- Detect and locate CBRN hazards
- Track active shooter
- Locate & monitor Illegal drug production

Early Collaborators
- Ohio Fire Chief
- ODPS
- Ohio EMA
- UDRI
- Muscatatuck
- U of Cincinnati
- Montgomery County
- U. of Toledo
- Sinclair CC
- WSRI
UASC Projects

- Federal Partnership – USAF and NASA Glenn Research Center
- Local Government & State Agency – Support & Flight Ops
- Colleges & Universities – R & D, Flight Training, AG
Cleveland Metroparks

Ebee flight – Mapping and invasive specie assessment
ODNR and ODOT Strip Mine Project

Ebee flight in Belmont County for ODNR on one of their reclamation sites and restoration project.
ODOT/OTC Bridge Inspection

Structure investigation I80/I90 Bridge over Sandusky River. September 13
Monitoring traffic for I75 bridge slide (replacement) over US 6
Planning and condition assessment for ODOT bridge replacement on SR 582.
Ohio Officers Training Police Academy

Thermal camera – parked car and a moving car
Power Substation Inspections
Solar Panel Inspections

Hot Spot
Agriculture Applications

- Irrigation
- Crop Moisture
- Soil Moisture
- Fertilizer Concentration
- Mold
- Bug Infestation
- Chlorophyll Concentration
- Feed Lot Inspection
- Peak Harvest
Precision Agriculture

Color Camera

Near Infrared

Normalized Difference Vegetation Index (NDVI)

Copyright: FourthWing, LLC
Soy Field

Eclectic Optical – Normal View

Infrared View

Normalized Difference Vegetation Index (NDVI)
Pumpkin Patch to the south and pickle field to the north. Green indicates health levels. Trying to detect powdery mildew and downy mildew on these crops.
OSU – Food, Agriculture, and Biological Engineering

Project 1 – Soil Compaction
OSU is tracking large scale agriculture equipment (grain carts, combines, sprayers, manure spreaders etc.) and evaluate the economic impact to the yield effect for agricultural crops from seed to harvest. This research aims to make farmers aware of the effect and damage they are doing with large equipment.

Project 1 – Nitrogen Plots
OSU is looking at the timing and models of nitrogen applied to grow corn crop throughout the growing season. If OSU can “feed” the corn when they need nitrogen they can reduce the amount of nitrogen needed for corn production thus be more sustainable and reduce farmers cost while increasing yield and becoming more profitable.
OSU – Food, Agriculture, and Biological Engineering

- Sense Fly eBee Flight - 06-24-2015
- RGB
OSU – Food, Agriculture, and Biological Engineering

- Sense Fly eBee Flight - 07-18-2015
- Multi-Spectral – Red Edge
OH/IN UAS Center

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