



Federal Aviation  
Administration

## Next Generation Air Transportation System (NextGen)

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## Problem Statement

- Our National Airspace System (NAS) is getting overcrowded at the time and our system cannot support the projected growth.
- At any given moment there could be 5000 planes in the air; this is expected to be doubled by the year 2025.
- Because of this situation, congress mandated that the FAA improve the NAS under a program called NextGen to accommodate the future growth of the system.



## What is NextGen?

- NextGen is an umbrella term for the ongoing transformation of the National Airspace System (NAS).
- At its most basic level, NextGen represents an evolution to a more safe, secure, efficient and greener system.
- This evolution is vital to meeting future demand, and to avoiding gridlock in the sky and at our nation's airports.



## NextGen

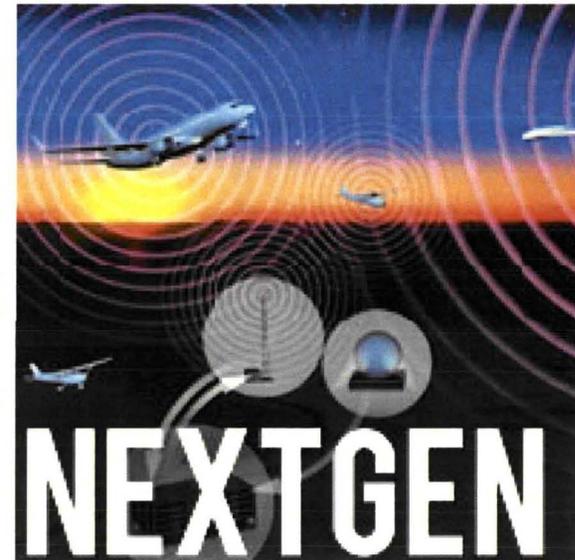
- Will open America's skies to continued growth and increased safety while reducing aviation's environmental impact.
- Will allow more aircraft to safely fly closer together on more direct routes, reducing delays and providing unprecedented benefits for the environment and the economy through reductions in carbon emissions, fuel consumption and noise.
- UAS/Aerospace Systems integration is the future planned range architecture and NextGen research enables a seamless aircraft/aerospace transportation system architecture for NASA.



## Making it Happen

•The NextGen portfolio includes six transformational programs:

- Automatic Dependent Surveillance-Broadcast,
- Data Communications,
- System Wide Information Management,
- NextGen Network Enabled Weather,
- NAS Voice System,
- Collaborative Air Traffic Management Technologies



## NextGen: Tomorrow at a Glance

### SWIM

- 2012: Initiate SWIM for surface data
- 2013: Standardize core SWIM services
- 2015: Finalize initial SWIM ATC system implementation

### SAA

- 2011-2014: Collaborate with industry and DoD on evolving capabilities
- 2014: Integrate SAA status information into ATC decision-support tools

### CSPO

- 2011: Complete blunder analyses
- 2011: Work toward satellite navigation alternatives to ILS
- 2012: Update FAA regulations to include satellite navigation

### CLEEN

- 2014-2015: Advance commercial alternative fuels development

FLIGHT PLANNING

PUSH BACK / TAXI

TAKEOFF

DOMESTIC/OCEANIC CRUISE

DESCENT

FINAL APPROACH / LANDING

### Data Comm

- 2012: Issue final investment decision
- 2015: Initiate revised departure clearances
- 2018: Initiate en route capability

### ASIAS

- 2014-2015: Continue implementation and enhancement

### ADS-B In

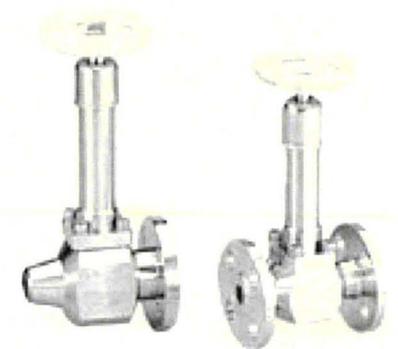
- 2011: Receive Aviation Rulemaking Committee (ARC) recommendations
- 2012: Receive ARC summary report, including user feedback

## Apart from NextGen

- I have worked with other projects such as:
- SeaPerch- Office of Naval Research (ONR)  
and ERAU
- Cryogenics Valves
- Board Development
- Launch Support



**EMBRY-RIDDLE**  
AERONAUTICAL UNIVERSITY



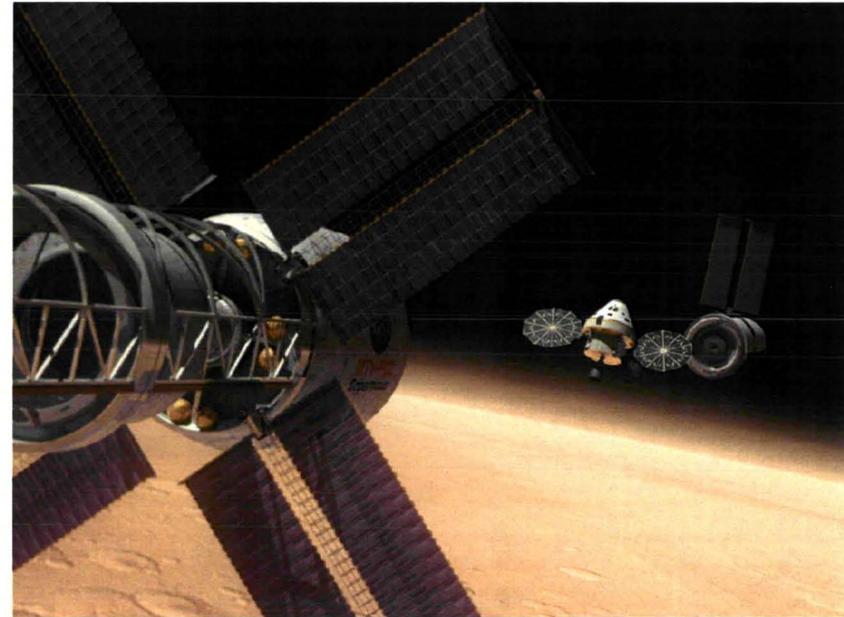
## Experience and Knowledge Gained

- During the past eight weeks I have acquired some incredible experiences and knowledge with my mentor and NASA, here are some:
- Learning about KSC
- Increasing my knowledge on NASA and STEM
- Skills for presentations
- Business and hands-on skills
- NASA Careers and their day to day basis
- Overview of NASA activities
- Knowledge acquisition from projects that I have worked on



## Future Plans

- Continue participating in projects such as NASA INSPIRE
- Move on to a higher level of education with increasing knowledge acquisition in STEM fields
- Develop career preparation for a future as a NASA Aerospace/Astronautical Engineer
- Participate in more programs that influence my desire to work for NASA and learn about STEM
- And many more...



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## Influences of Experience

- Created a better understanding of what my desired career would be like.
- Showed me the process that is needed to achieve that career.
- Prepared me with the basis of what to expect with a NASA career.
- Increased my desire to be part of this incredible organization.

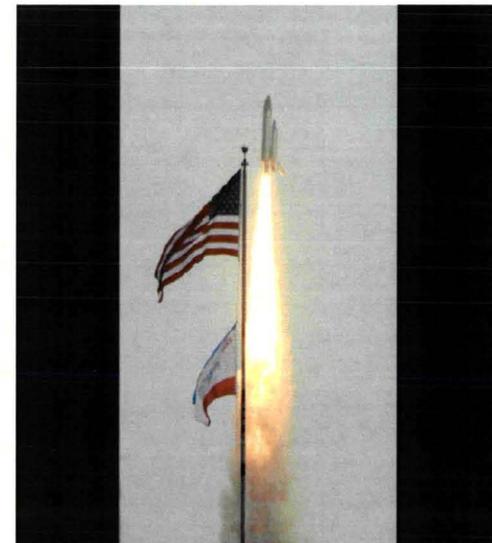
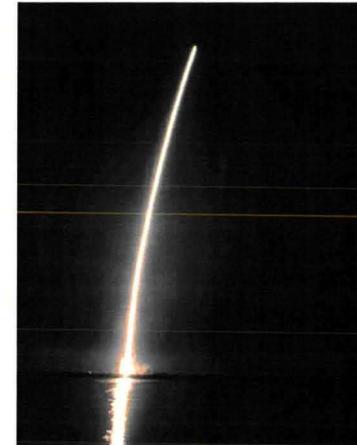


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## Exposure, Experience and Knowledge Gained Regarding NASA

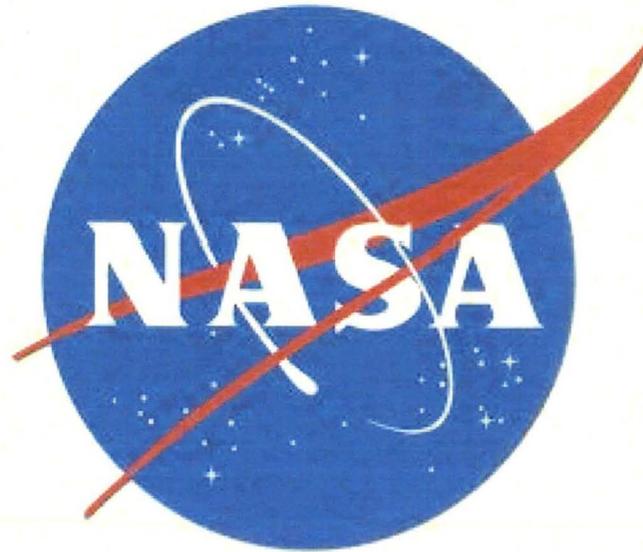
- See firsthand the NASA facilities in the Kennedy Space Center
- Learn about NASA Careers
- Be part of history with STS-135 and Delta 4 Launch
- Acquire more knowledge of the agency
- Learn more about NASA's Missions
- Show the business and Hands-On parts of NASA



# Thank You



John F. Kennedy Space Center



“Destiny is no matter of chance. It is a matter of choice. It is not a thing to be waited for, it is a thing to be achieved.”

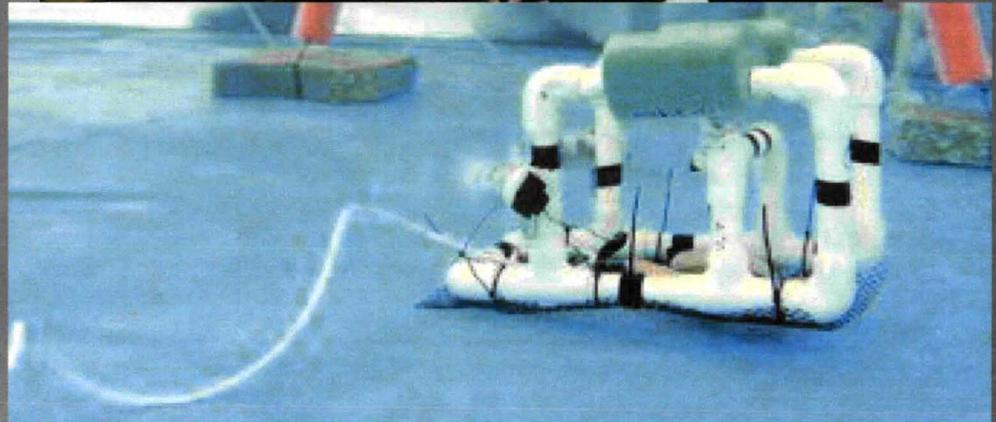
William Jennings Bryan

# Next Generation Air Transportation System (NextGen)



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# What I do



# Problems

- Skies and airports will soon be too over crowded for the current air traffic system.



- No current regulations for simultaneous flight of manned aircraft, unmanned aircraft, and vehicles that travel over 60,000 ft



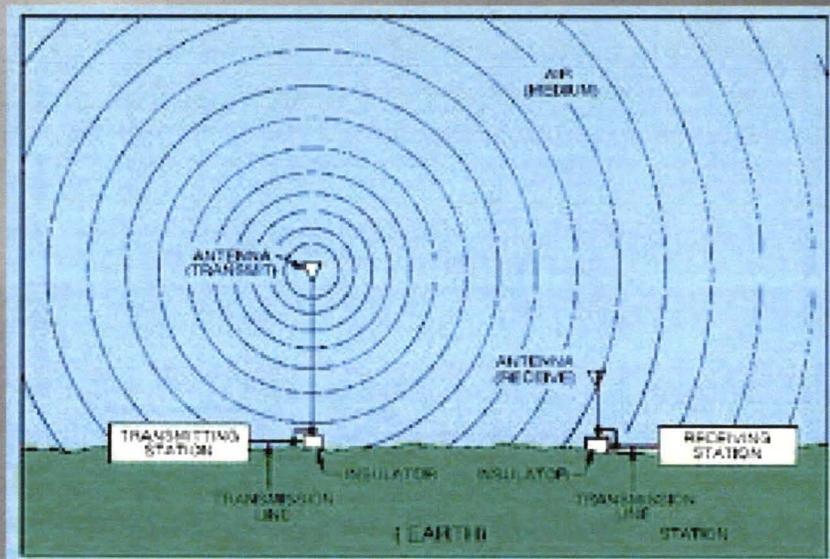
# NextGen

NextGen is a program to develop new technologies and procedures to be able to support the increasing amount of aircraft in the NAS while also creating standards so that UAS' and sub-orbital and orbital vehicles can fly in the NAS. NexGen is also working to protect the environment while using efficient energy.



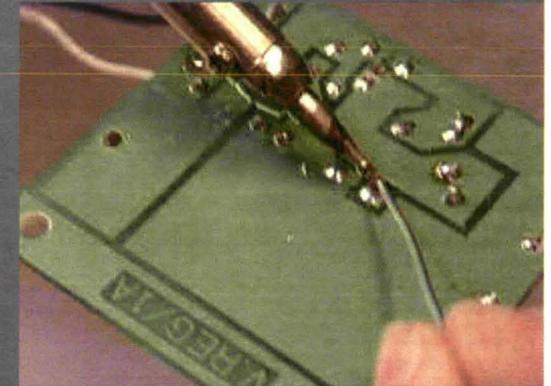
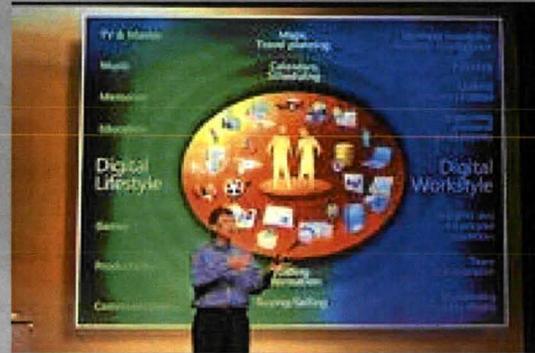
# KSC and NextGen

KSC is leading the effort to develop a system that is able to accommodate UAS and launch vehicles simultaneously with manned aircraft. KSC will benefit from the ability to use UAS for launch vehicle support (surveillance, launch vehicle tracking, and communications).

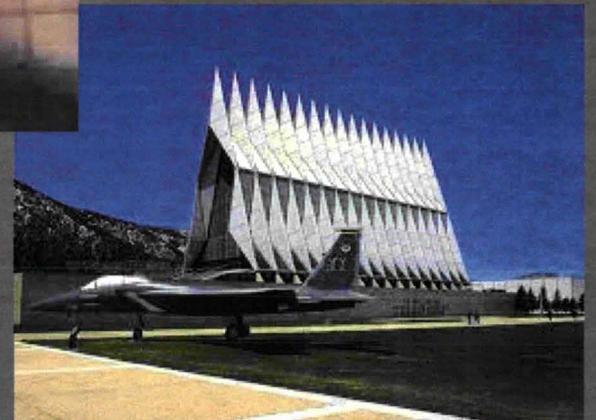


# What I Learned

- NASA Work Experience
- NextGen Technologies
- Soldering
- Presentation Skills
- Shuttle Cryogenics
- Electronics
- Shuttle launch viewing



# Future Plans



# Thank You

To all who made this internship possible and to all who made this internship amazing.

# Go Air Force

