



ARTHUR C CLARKE INSTITUTE
FOR MODERN TECHNOLOGIES
(ACCIMT)

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ACCIMT...

- State Institution for Research & Development.
- Expertise
 - Space technologies and applications
 - Robotics
 - Telecommunications
 - Electronics
 - Industrial services
 - IT

Robotics Division

- Focus areas
 - ▣ Mobile robots
 - UAV
 - All terrain Rovers
 - ▣ Industrial Automation
 - FPGA
 - PLC
 - Embedded systems

UAVs

- Main classifications (Considering remote sensing)
 - High altitude systems
 - Extremely long endurance.
 - Expensive and need full flight maintenance crew.



NASA Helios



Fremdfoto: NASA

NASA Pathfinder

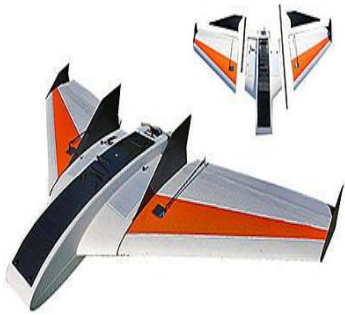
Cont...



NASA's Global Hawk

Cont...

- Low altitude systems
 - Classifications
 - Fixed wing UAVs



- Rotorcrafts (Helicopters and Multicopters)



Cont...

- Fixed wing UAVs
 - Advantages
 - Efficient
 - For long range missions
 - Disadvantages
 - Harder to maintain precise altitude
 - Requires training
 - Effected by sever weather

Cont...

□ Multirotors

□ Advantages

- VTOL capability
- Operates in relatively smaller spaces
- Precise Altitude control

□ Disadvantages

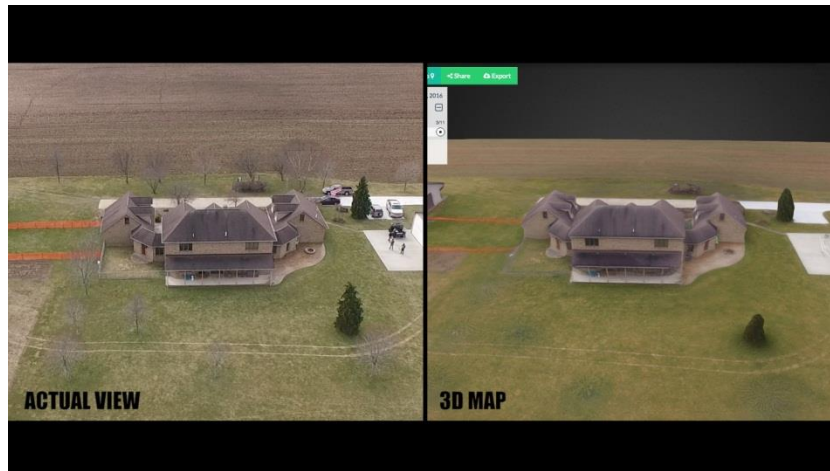
- Smaller flight time
- Small scale surveys

UAVs for remote sensing

- Widely used due to mainly 4 reasons
 - ▣ Low cost
 - ▣ High resolutions data
 - ▣ Near real time data
 - ▣ Cloud free data

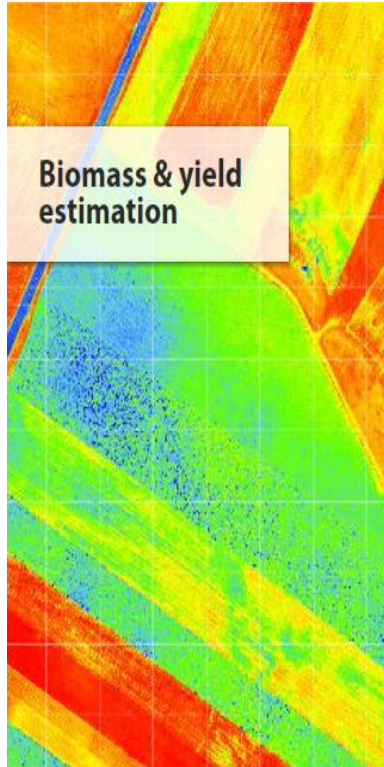
Applications

- Archeology
 - Identification of sites and looting
 - 3D mapping and Modeling
 - DroneDeploy open source app for DJI users



Cont...

□ Agriculture

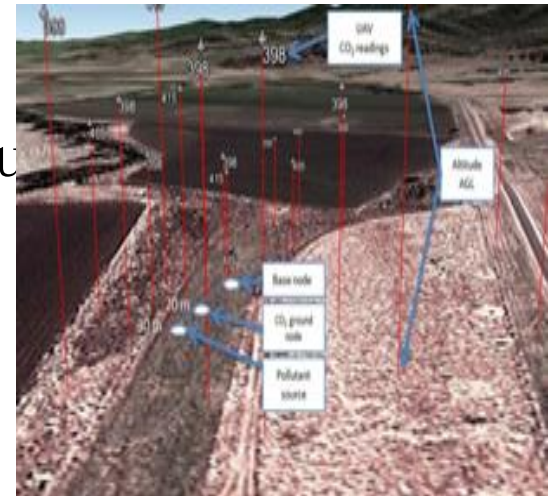


Plus...

- Stress assessment
- Senescence analysis
- Leaf area indexing
- Phenology
- Growth monitoring
- Crop discrimination
- Weed detection
- Tree classification
- Drainage planning

Cont...

- Surveying and monitoring
 - ▣ Oil and Gas Exploration and Production
 - ▣ Mineral exploration
 - ▣ Geophysical surveys
 - ▣ Civil engineering sites
 - ▣ Oil and gas pipeline
 - ▣ Pollution Control and Air Sampling



Cont...

- Disaster Management
 - ▣ Disaster effects management
 - ▣ Rescue and clear up effort supervision
 - ▣ Disaster damage estimation



Drones at ACCIMT

- F450 Test platform
 - ▣ In-house fabricated and coded control system
 - ▣ Payload around 700g



Cont...

- Q-200 Agri Pro
 - ▣ Twin Lumix NDVI System
 - ▣ Swappable sensor pods
 - ▣ Pix4Dmapper Discovery
Post Processing Software



On-going research at ACCIMT

- Hybrid VTOL wing
 - ▣ Convenience of hover from multicopters
 - ▣ Efficiency of fixed wings
- Fully autonomous data acquisition

What to expect..

- Exponential growth in UAV for remote sensing
 - Miniaturized sensors



THANK YOU