

CONFIDENTIAL

UPS

Demonstration project
Enhancing situational awareness
between IFR and VFR traffic
at non towered airport



David Wartofsky
Potomac Aviation Technology Corp
Potomac Airfield 10300 Glen Way
Fort Washington, Maryland 20744
301 248 5720



CONFIDENTIAL

CONFIDENTIAL



Problem

- At non-towered airports or tower is closed
- Task saturated IFR aircraft on approach entering busy VFR traffic areas
- IFR aircraft are talking with approach control
- IFR aircraft NOT listening or talking on airport Unicom/CTAF

Solution

- Enhancing VFR area traffic awareness of inbound IFR traffic
- MicroTower provides IFR traffic advisory to VFR area traffic in the area of the airport
- Listens and Communicates with ALL area traffic by radio over Unicom/VHF/CTAF
- Addresses everyone from new students to experienced pilots

Use simple clear VFR phraseology

Only affirm what we know

Affirm more when we know it



David Wartofsky
Potomac Aviation Technology Corp
Potomac Airfield 10300 Glen Way
Fort Washington, Maryland 20744
301 248 5720

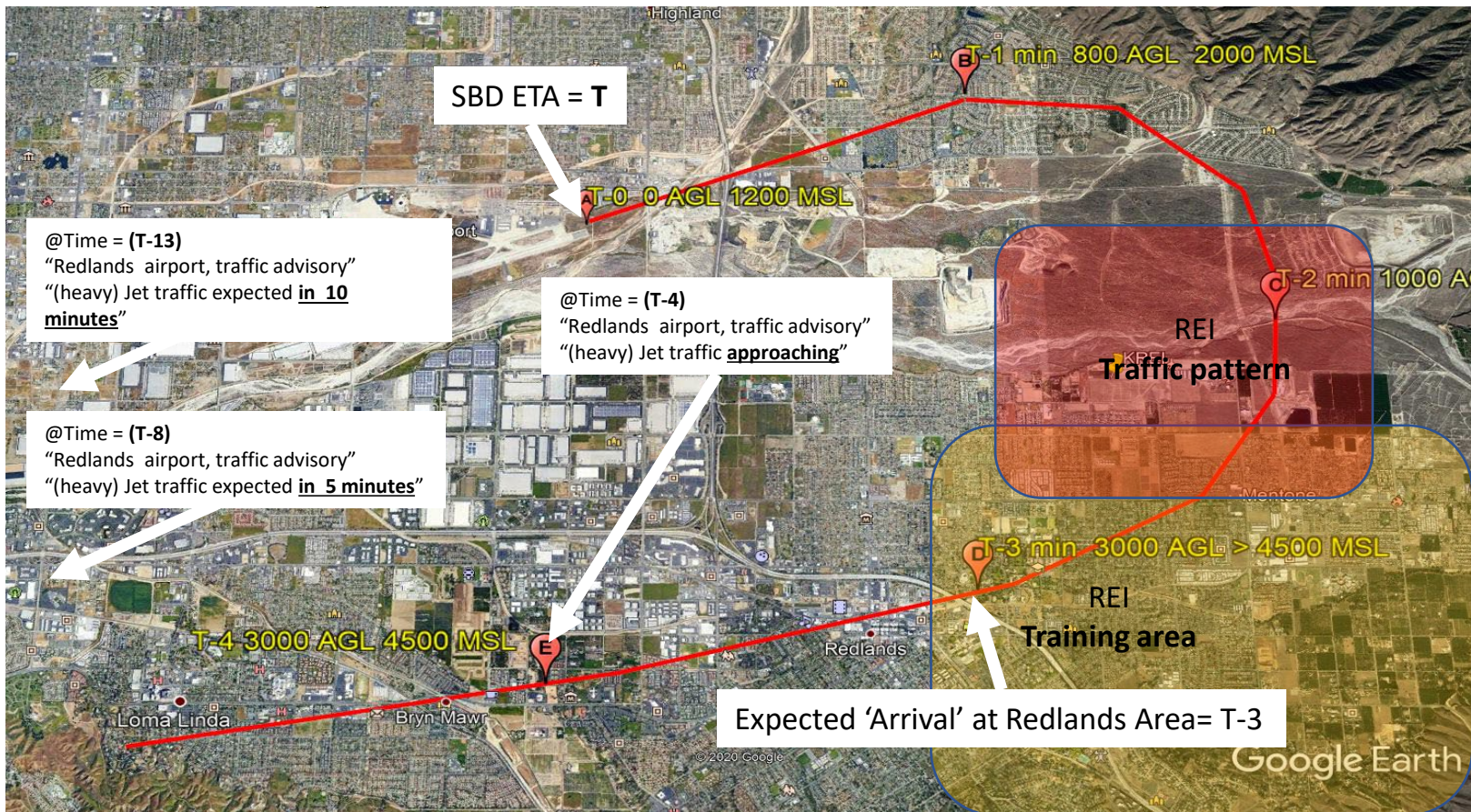
CONFIDENTIAL

UPS IFR APPROACH INTO SAN BERNADINO TRANSITIONS THROUGH REDLANDS VALLEY

Approximate timing / altitudes – arrival SBD

Approximately 180 knots average speed = 3 mi/minute

David Wartofsky
Potomac Aviation Technology Corp
Potomac Airfield 10300 Glen Way
Fort Washington, Maryland 20744
301 248 5720



Solution



1. ACARS updates UPS of ETA

ACARS

2. UPS passes ETA to PATC



Internet Cloud

POTOMAC AVIATION UDS
TECHNOLOGY CORP
Potomac UDS Application

3. Potomac's cloud-based software ('UDS')

- a) Performs airspace / closure / timing calculations
- b) Passes ETA and instructions to MicroTower on ground

Micro Tower

4. MicroTower at KREI communicates w area pilots by radio

"...Possible IFR (heavy) aircraft inbound..."



Over KREI VHF / CTAF

- a) **Timed call on VHF (sensitive to VHF congestion)**
- b) **In greeting message if triggered**
- c) **In advisory message if triggered**
- d) **In radio check message if triggered**



Micro Tower

KREI REDLANDS AIRPORT



What is a MicroTower?

The mind and experience of a pilot embedded into an autonomous system

- A Unique New Technology
 - Delivering Automatic Air Traffic and Weather Advisories
 - Ideal for non-towered airports and heliports everywhere
- Autonomous Off-Grid Artificial Intelligence for airports
 - Listens and speaks directly to pilots by radio
 - Understands patterns of speech in any language
 - Expert in flight operations and radio communications
 - Provides 24/7 advisory services to flight operators
- 100% off grid - deployable anywhere
 - Solar powered
 - Internet-linked by satellite



David Wartofsky
Potomac Aviation Technology Corp
Potomac Airfield 10300 Glen Way
Fort Washington, Maryland 20744
301 248 5720

4. Artificial Intelligence in ATAS

"The science of making machines do things that would require intelligence if done by men."

Marvin Minsky, co-founder MIT Artificial Intelligence Laboratory

MicroTower Is Smart

Awareness

- Listens to air traffic frequency use by area aircraft
- Observes runway conditions (AWOS)
- Knows airspace use for its specific airport or heliport

Expertise

- Knows flight operations: fixed wing, helicopter, VFR & IFR
- Anticipates air traffic airspace, patterns and flows
- Understands patterns of human speech & communications

Judgement

- Never interferes with busy air traffic radio frequency
- Smart METAR minimizes impact to air traffic frequency
- Prioritizes information based on real-time operational needs
- Always clear, polite, professional, consistent radio manners

Experience

- Understands and anticipates fixed wing operations
- Understands and anticipates helicopter operations
- Understands airport operations and traffic flow

3. VIDEO BRIEFINGS

FUNDAMENTALLY NEW AND DIFFERENT 60 secs

Super enhanced alternative to traditional basic AWOS

3 HOUR INSTALLATION ANYWHERE 90 secs

100% solar, self-contained, installs anywhere in just a few hours

CONTROL TOWER LIKE SERVICES 24/7 3 mins

Similar to having a staffed control tower every day and every night

IN FLIGHT DEMONSTRATION 9 mins

Go for a virtual flight for a demonstration and discussion

MICROTOWER WALK AROUND TOUR X mins

A walk around tour of an installed MicroTower system

Micro Tower



Under development



What services does it provide?

David Wartofsky
Potomac Aviation Technology Corp
Potomac Airfield 10300 Glen Way
Fort Washington, Maryland 20744
301 248 5720

24/7 Air Traffic Advisory Service (ATAS)

Automated Unicom (FAA) / AFIS (ICAO) service 24/7

1. Listens for and Automatically Greets inbound pilots by radio
2. Provides Area Traffic, Best Runway for Wind and Traffic, Windshear, Crosswind, Smart METAR, other Advisories
3. Two-way radio check, of power and clarity

Smart METAR

1. Keeps air traffic frequency clear for primary use by air traffic
2. Dynamically adapts transmission content
3. Adjusts to frequency congestion second-to-second
4. Prioritizes operational information
5. Suppresses non-essential information
6. Non-intrusive even on the busiest VHF frequency

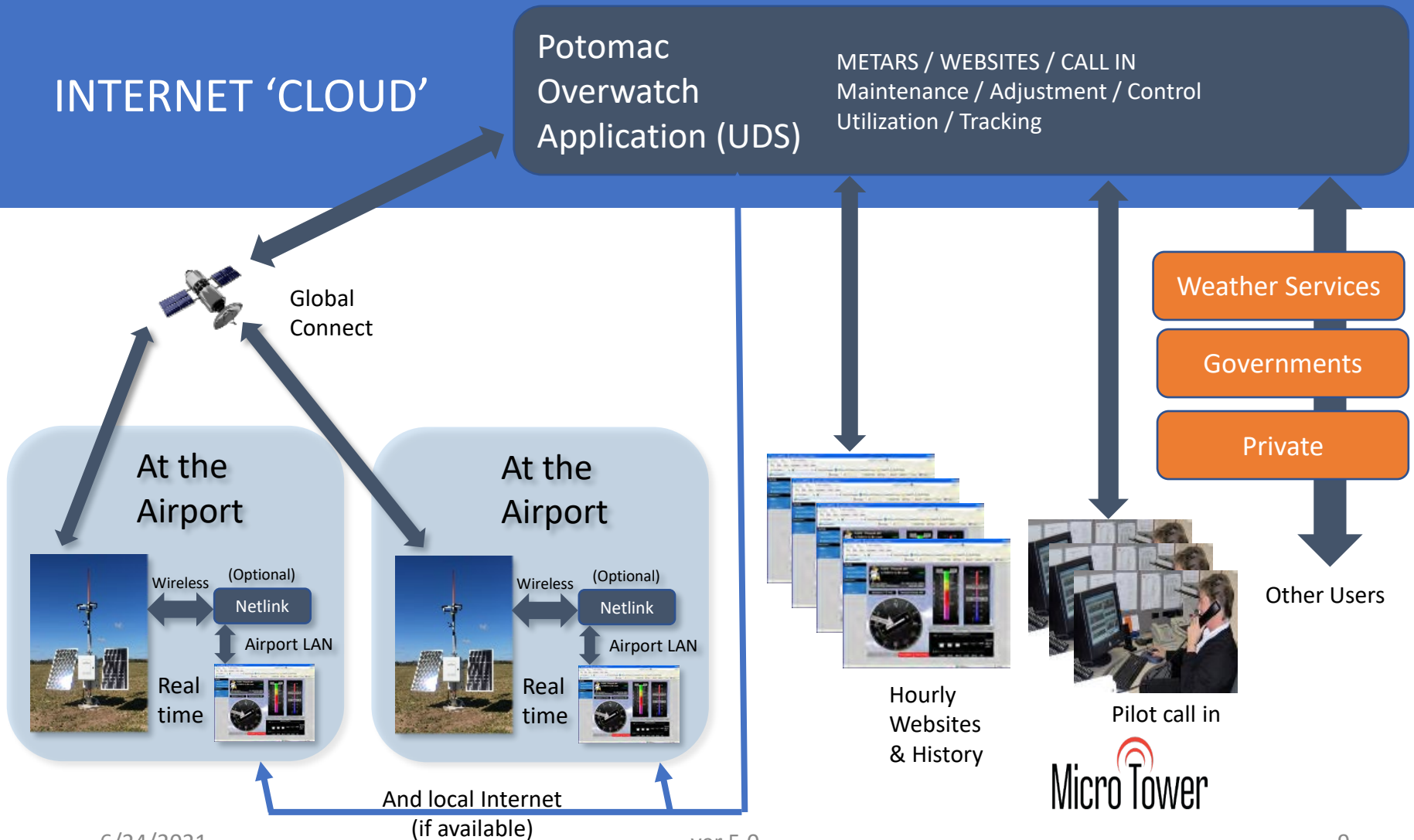
- Proven at airports 70,000+ operations per year

Built-in sensing *similar* to AWOS3P

1. Observes runway environment
2. Used by AI to make smart calls to pilots
3. Similar METAR to AWOS3P



Information Made Widely Available



Where has it been deployed?

United States



South America



Heliports



Mining

Middle East



Hospitals



US Army



Africa

India



Indonesia



Asia

More than 100 locations across four continents

David Wartofsky
 Potomac Aviation Technology Corp
 Potomac Airfield 10300 Glen Way
 Fort Washington, Maryland 20744
 301 248 5720

Covered under
 one or more of
 the following
 patents

Current Potomac Aviation Tech Corp Patents

Case	Country	Status	PatNumber	InvTitle
1830.1002-000	US	Granted	5,434,565	Automatic Weather Monitoring And Adaptive Transmitting System
1830.1002-001	AU	Granted	685,257	Automatic Weather Monitoring And Adaptive Transmitting System
1830.1002-002	CA	Granted	2,186,134	Automatic Weather Monitoring And Adaptive Transmitting System
1830.1002-004	FR	Granted	752,115	Automatic Weather Monitoring And Adaptive Transmitting System
1830.1002-005	GB	Granted	752,115	Automatic Weather Monitoring And Adaptive Transmitting System
1830.1002-006	DE	Granted	69511849.8-08	Automatic Weather Monitoring And Adaptive Transmitting System
1830.1002-007	IT	Granted	752,115	Automatic Weather Monitoring And Adaptive Transmitting System
1830.1002-009	AU	Granted	715,108	Automatic Weather Monitoring And Adaptive Transmitting System
1830.1002-010	EP	Granted	933,890	Automatic Weather Monitoring And Adaptive Transmitting System
1830.1002-011	US	Granted	5,565,868	Automatic Radio Check Monitoring And Adaptive Transmitting System (as amended)
1830.1002-012	US	Granted	5,862,454	Automated Radio Check System And Method
1830.1002-013 b	US	Granted	6,181,260	Automatic Weather Monitoring And Adaptive Transmitting System
1830.1002-014	US	Granted	RE38,925	Automatic Weather Monitoring And Adaptive Transmitting System
1830.1002-016	CA	Granted	2,461,049	Method for Automatically Providing Radio Checks to Vehicle Radios
1830.1002-017	FR	Granted	933,890	Automatic Weather Monitoring And Adaptive Transmitting System
1830.1002-018	DE	Granted	933,890	Automatic Weather Monitoring And Adaptive Transmitting System
1830.1002-019	GB	Granted	933,890	Automatic Weather Monitoring And Adaptive Transmitting System
1830.1005-000	US	Granted	6,380,869	Automated Air-Traffic Advisory System And Method
1830.1005-004	AU	Granted	762,678	Automated Air-Traffic Advisory System And Method
1830.1005-005	CA	Granted	2,374,316	Automated Air-Traffic Advisory System And Method
1830.1005-006	US	Granted	6,552,669	Automated Air-Traffic Advisory System And Method
1830.1005-008	FR	Granted	1,190,408	Automated Air-Traffic Advisory System And Method
1830.1005-009	DE	Granted	60012177.1-08	Automated Air-Traffic Advisory System And Method
1830.1005-010	GB	Granted	1,190,408	Automated Air-Traffic Advisory System And Method
1830.1005-011	IT	Granted	1,190,408	Automated Air-Traffic Advisory System And Method

11. Where can I see a MicroTower?

In the news

At any of our locations worldwide



[Click to play video](#)



Or come visit our airport just 20 minutes from Washington, DC, USA