November 25

Case Study How SensAI Achieved 93% Decision Alignment in Real-World Border Control Operations

Location: International Airport
Period: September–October 2025
Objective: Evaluate SensAI's ability to support immigration investigators in real time decision making through behavioral + physiological deception detection.

1. The Challenge

National immigration units face an increasingly complex task:
large passenger volumes, diverse languages, diverse cultures, high stakes decisions and limited prior intelligence.

Traditional interviewing relies heavily on training, intuition, and incomplete information.
The Immigration Authority partnered with SensAI to test whether advanced deception detection AI could **enhance accuracy, reduce uncertainty, and strengthen the decision-making process** during secondary screening interrogations.

2. The POC

Over **13 days**, the team recorded and analyzed:

- **163 real immigration interviews**
- **37.5 hours** of video data
- **12 investigators & 7 SensAI specialists**
- Multiple languages, open session real time conversational questioning
- SensAI used only the interview video

The environment was fully operational, complex, dynamic, and uncontrolled.
Exactly where AI must prove itself.

3. Key Results

3.1 93% Overall Accuracy

Across all 163 interviews, SensAI aligned with investigators' final decisions in **92.6%** of cases, nearly identical to its laboratory accuracy (94%).
This confirms that the system remains **stable and reliable in real world conditions.**

3.2 Near-Perfect Precision in High Risk "Refused Entry" Cases

- **98.5% Fit rate** in refusals
- **Only 1 false negative (1.49%)**
- **92% session match rate** for Fit cases
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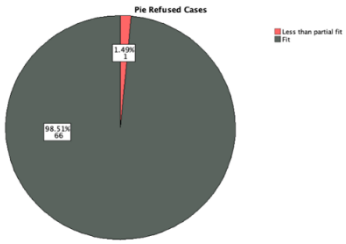
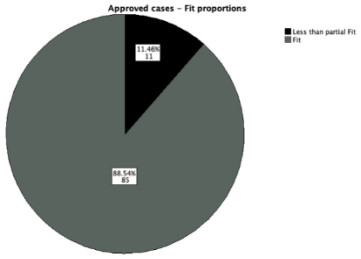


This means the system almost never failed to detect deception when investigators refused entry, the highest risk category.

3.3 Strong Prediction Capability for "Approved Entry" Cases

- **88.5%** of approved cases correctly aligned
- **11.46%** false positive rate (conservative bias to avoid wrongful approvals)
- **89% session match** among Fit approvals



SensAI's conservative orientation provides additional operational safety.

3.4 Best Performance in Uncertainty Driven Interviews

Interviews were classified into two types:

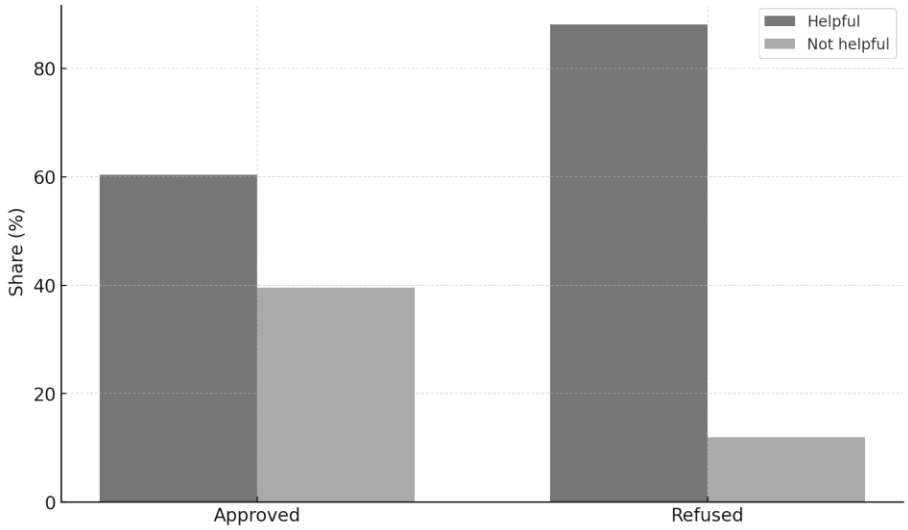
- **Assumptions:** Investigator relies on live conversation (no prior intel)
- **PIC:** Investigator has preexisting intelligence

SensAI delivered **its strongest impact in Assumptions cases**, where uncertainty is highest and behavioral signals matter most.

3.5 Investigators Rated the System as Highly Helpful

Helpfulness reflects whether SensAI guided or supported decision-making:

- **88.1%** Helpful in refusal cases
- **60.4%** Helpful in approval cases



In high stakes situations, SensAI meaningfully influenced topic prioritization and depth of questioning.

4. Operational Takeaways

The POC confirmed that SensAI:

- ✓ ***Strengthens decision accuracy under uncertainty***
- ✓ ***Identifies deception even in highly unstructured conversations***
- ✓ ***Reduces risk of false approvals***
- ✓ ***Provides real-time insights during open dialogue***
- ✓ ***Performs objectively regardless of investigator expectations***
- ✓ ***Supports multilingual interrogation environments***

The system's stability across diverse information conditions proves it can operate reliably even when prior intelligence is limited or unavailable.

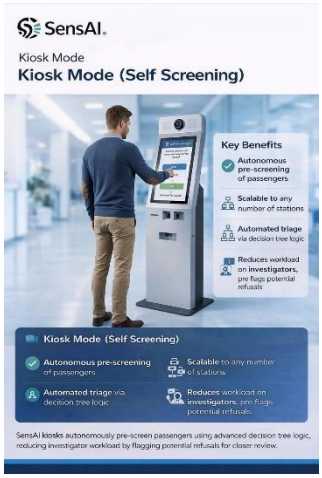
5. Recommended Deployment Models

1. Real Time Assistance Mode

Real time Red/Yellow/Green indicators during investigator led interviews.

2. Kiosk Self-Screening Mode

Autonomous triage to reduce workload and flag high risk passengers before human review.



Conclusion

The International Airport POC demonstrates that SensAI provides **human equivalent predictive power** with **superior consistency**, minimal false negatives and significant operational value.

In environments where every decision matters, SensAI equips investigators with a **powerful, objective, AI-driven layer of insight** that strengthens border security while preserving fairness and efficiency.