

# Voice Signature with Strong Bindings

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CEM IR & D

The logo for the MITRE Technology Program, featuring a stylized graphic of stacked blocks in yellow, orange, and blue to the left of the text.

**MITRE**  
Technology  
Program

# Problem

- **Currently no means exist to electronically sign documents which are comparable to the traditional handwritten signature in**
  - **Security strength**
  - **Ease of use**
  - **User preparation**

# Background



- An effective signature:
  - ❖ Binds the signature to the individual (signer)
  - ❖ Binds the signature to the form/document being signed
  - ❖ Offers adequate resistance to replay attacks
  - ❖ Demonstrates acceptance of intent

# Objective

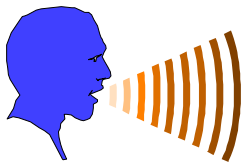
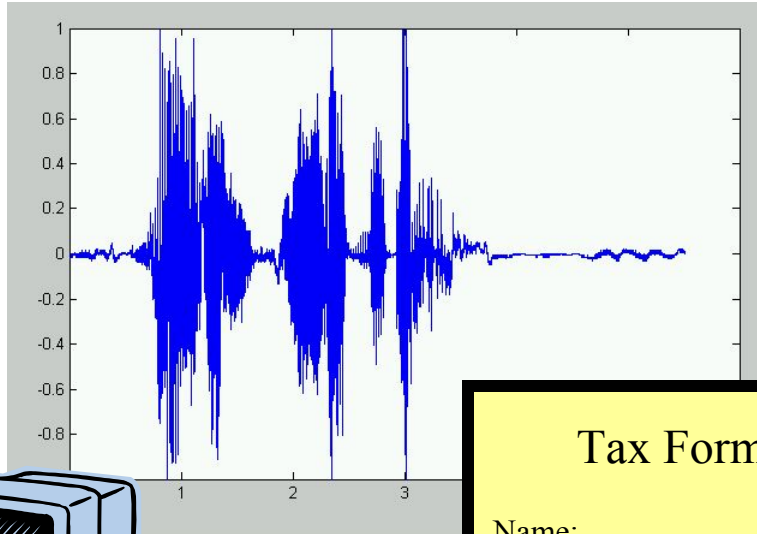
- **Develop a prototype implementation of a voice signature capability, including**
  - **Fully functional stand-alone signing on the client**
  - **Back-end verification capability**
- **Examine**
  - **Robustness of the implementation and strength of the approach**
  - **Impact of microphone variation and system configuration**

# Activities

- Filed patent application
- Developed voice signature trust document
- Developed security requirements draft
- Began system design document
- Completed client side software requirements
- Completed C# training
- Determined automated speech recognition (ASR) technology choice
- Developed client signing prototype
  - Developed speech components
  - Developed signature wizard
  - Developed stand-alone application and Office plug-in
  - Included significant human-interface review to ensure usability

# Highlight

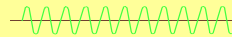
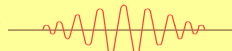
Patent Pending



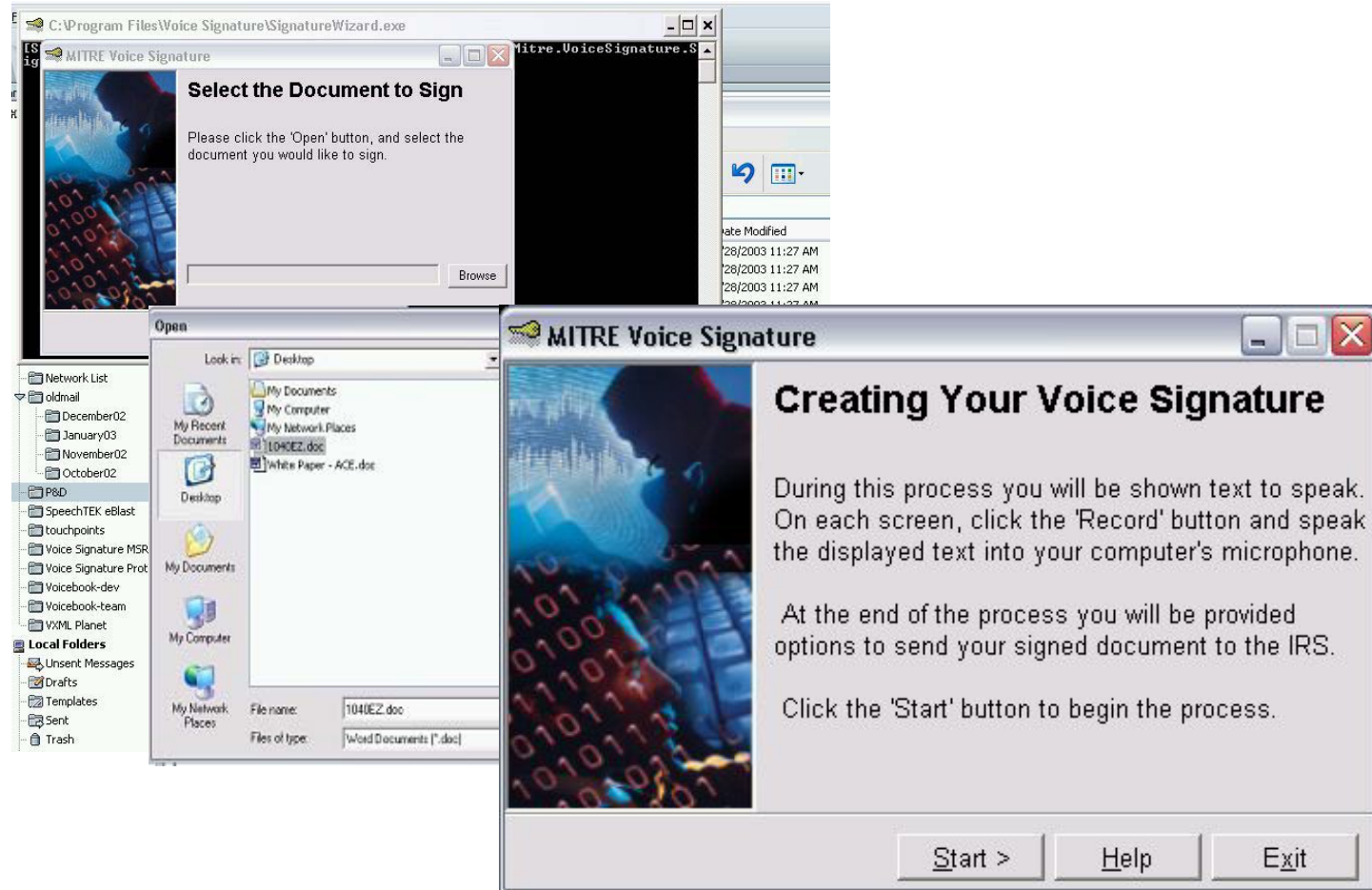
**Tax Form**

Name:  
SS#:

Gross Income:

Signature   


# Demonstration



# Impacts

- **Deployable voice signature capability of immediate benefit to numerous sponsors**
- **Commercial applicability**
  - **Online purchases**
  - **Online contracts**
- **This approach provides secure electronic signature**
  - **Without user registration**
  - **Without significant backend infrastructure support**
  - **With minimal cost to the signer**
  - **With minimal (or no) user training**
- **Voice signature uniquely integrates and capitalizes on MITRE's current biometric, speech recognition, and security efforts.**

# Future Plans

**Develop back-end verification capability and examine robustness of implementation**

