

Babylon

Joyce D. Williams

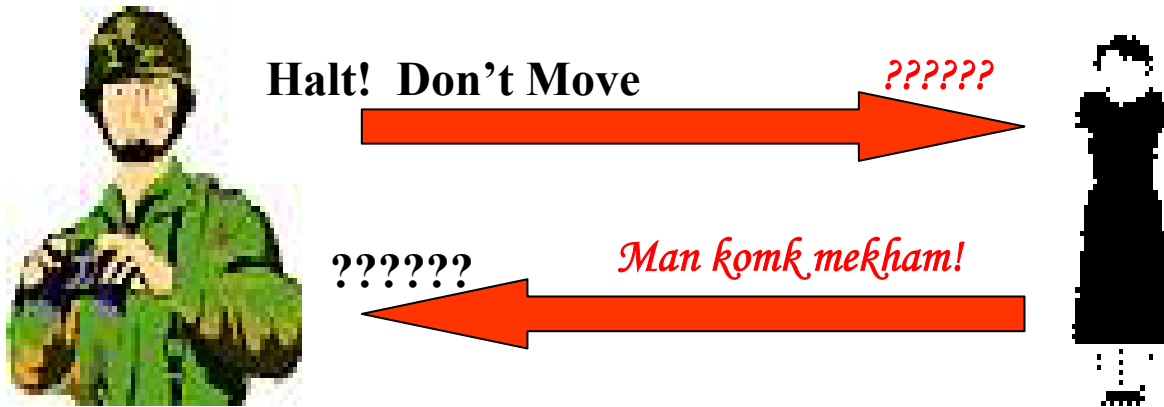
619-758-7831 • jwilliam@mitre.org

DARPA/IAO



Problem

Multilingual environments often result in communication difficulties, especially in high-pressure operational situations



Background

- **DARPA One-Way handheld devices provide translation from spoken English into other languages**
- **One-Way will provide minimal operational support for 18 months**
- **Two-way Babylon devices needed to translate from other languages into English**
- **Babylon as a seedling is producing early prototypes now**



Objective

Program Goal: Introduction of true two-way multilingual translation for the combat environment

Voice Input

Halt! Don't move!

Man komk mekham!

Are you hurt?

Baleh, man darde zayman daram

I'll call the medic

Audio Output

Waisa, harkat naKon!

I need help!

Aya majroh shodee?

Yes, I am in Labor.

Man grouhe imdadee ra khabar medaham



Activities

- Evaluate performance and usability of the hand-held translation systems in three real-world tactical domains (force protection, medical triage, and refugee processing).
- Schedule and coordinate gathering of user requirements from subject matter experts (SMEs).
- Support data collection efforts of four Babylon development teams and assist in creation of common corpus.
- Help define data format and collection standards. Assist with data collection wherever possible.

Highlight

- **Unlike One-Way systems, many two-way translation components are immature or unstable**
- **Challenges to be addressed**
 - **Interlingua-based model**
 - **Shallow parsing**
 - **Semantic knowledge representation**
 - **Porting to PDA devices**
 - **Response time**
 - **Quality of service control**
 - **Tool kits**
 - **Hardware upgrade of One-Way device**

Highlight/Demonstration





Impacts

- **Goal: Replacement of the DARPA One-Way in two phases**
- **Impact: Ability to converse in multiple languages. Enhance situational awareness of the warfighter in different environments**
- **Challenges: Translation accuracy, response time, CPU footprints, requirements, production, logistics, training, and exit strategy**



Future Plans

- **Emergency DARPA 1+1 system in 6 months with 4 languages (up to 8 additional languages may be added based on needs)**
- **At least three functional prototypes ready for potential limited production in 18 months**
 - **One large and two small platforms designs**
 - **Four languages: Arabic, Mandarin, Pashto, Dari**
- **Putting multilingual ASR on Objective LandWarrior V3.0**