

# A CONVERSATIONAL ASSISTANT TO SUPPORT IMMIGRANTS' LEARNING OF ITALIAN AS L2: CPIABOT

**Giorgio Robino** (ITD - CNR Genoa)

**Simone Torsani** (Digital Humanities/University of Genoa)

**Fabrizio Ravicchio** (Digital Humanities/University of Genoa; ITD - CNR Genoa)



UNIVERSITÀ DEGLI STUDI  
DI GENOVA



# Context - migrant population and language needs

## Migrant population in Italy

- Different origin
- Different mother tongue
- Different language skills
  - Presence of illiterate or weakly educated adults

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- Language needs of adult immigrants in Italy
  - Acquire communication skills to interact with the host community
  - Pass language tests necessary for residence and citizenship

Public and private institutions for teaching Italian L2

Centri Provinciali per l'Istruzione degli Adulti (CPIA)

Provincial Centres for Adult Education

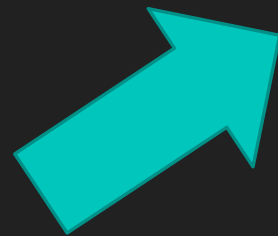
- Inconsistent frequency
- Situations of social isolation
- Heterogeneous classroom

# Mobile Assisted Language Learning (MALL)

## Features:

The devices allow new learning processes based on:

- Continuity
- Spontaneity
- Accessibility
- Interaction with different contexts of use (Kukulska-Hulme, 2008).



- Potential for learning autonomous and outside-classroom learning;
- App/chatbot as a complement and not a substitute for formal/institutional teaching;
- Hybrid formal and informal learning

# Innovation in CPIAbot

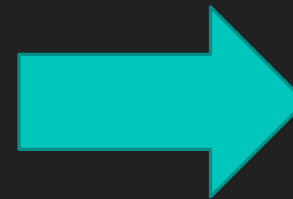
## CPIAbot characteristics

Conversational and multimodal interface

Support in accessing resources and services with a single command (expressed in L2)

Adaptive feedback and multi-turn dialogues

Support to teachers in assignment delivery to groups and single students



## Contribution to MALL

- Language first tool  
→ L2 as a means to interact with CPIAbot
- Teaching and learning assistant  
→ Management of a hybrid educational action

# CPIABOT: FUNCTIONAL ASPECTS OF EDUCATIONAL ACTIVITIES

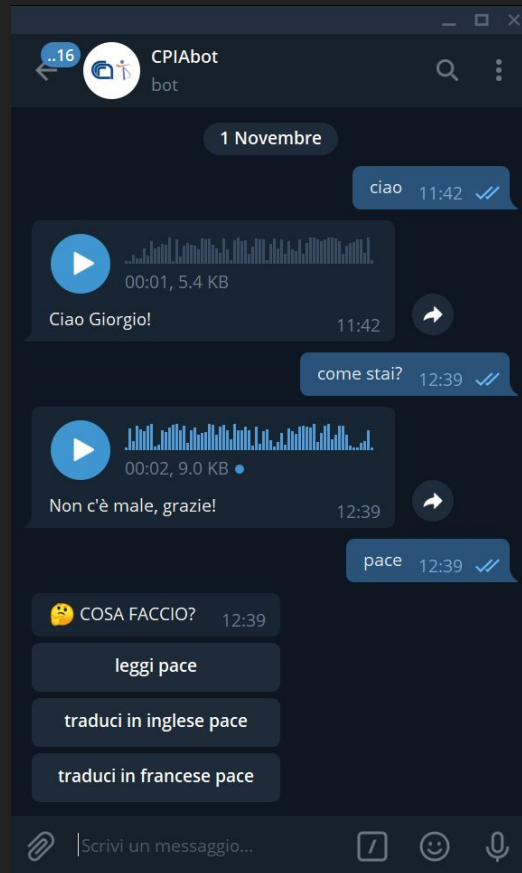
Requirements for the match between technology and context's needs:

- **Accessibility**  
CPIA students must be able to use CPIAbot from their own devices
- **Ergonomics**  
A multimodal and multi-level chatbot to support learning in heterogeneous classes
- **Adherence to the teaching approach**  
Interaction in natural language and possibility to use CPIAbot as a support for communicative activities)
- **Hybridization of learning spaces**  
possibility of CPIAbot to act as a link between the classroom lesson and the individual learning of the extra-school

# CPIAbot - Features

Emphasis on:

- Conversation
- Natural language
- Multimodal and multimedia interface
  - IMAGES/VIDEO/AUDIO
  - TTS E ASR (TEXT/SPEECH)
- Multilevel UX
- Possibility of feedback to teacher and student
- Ergonomics of the learning process



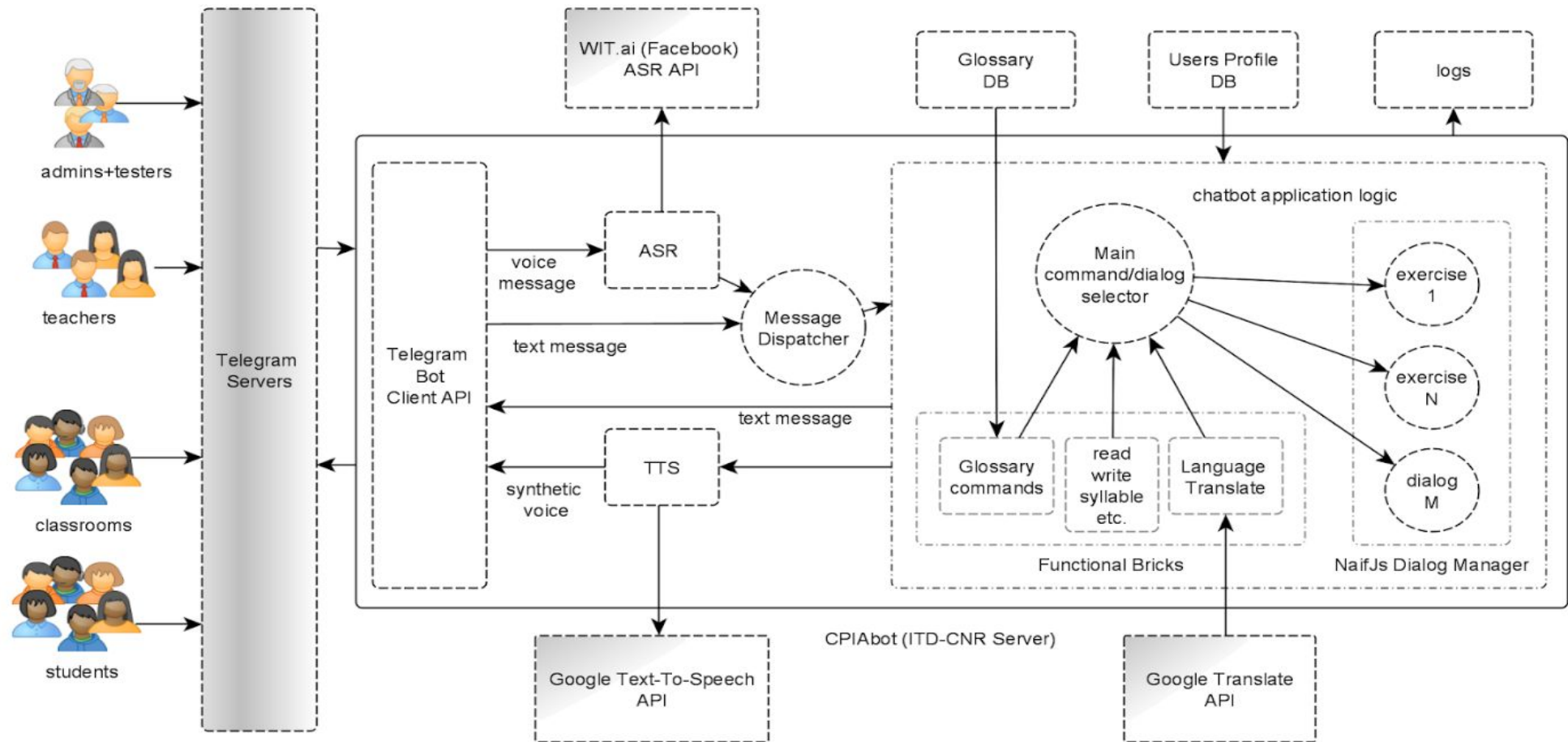
Telegram instant messaging:

- Free of charge
- open platform
- privacy compliant

Telegram bot ecosystem:

- bot API
- multimedia capabilities

# CPIAbot - Architecture



# CPIAbot - Structure and resources

## PRIMITIVE FUNCTIONS

Single turn  
(hit and answer)

Access to multimedia  
resources or services  
through an invocation in  
natural language

## CONVERSATIONAL EXERCISES

- Exercise dialogues
- Listen and repeat
- Listen and write
- Read and repeat
- Guess the word
  
- Objectives concerning:
  - Reading - writing skills
  - Lexicon

## DIALOGS

- Authentic situations
- Embedded in Learning Units
  
- Objectives concerning
  - Lexicon
  - Communication functions



# CPIAbot - Single turn functions

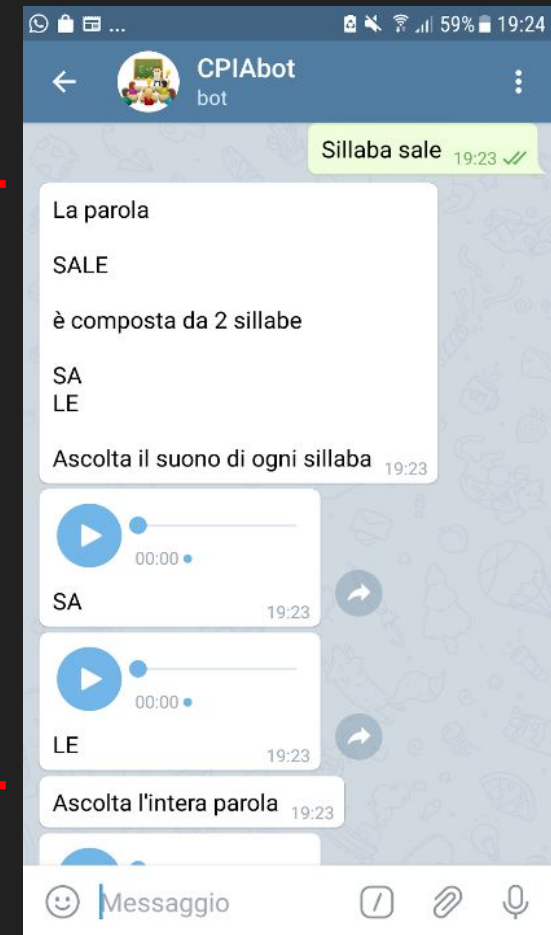
Translate



Write

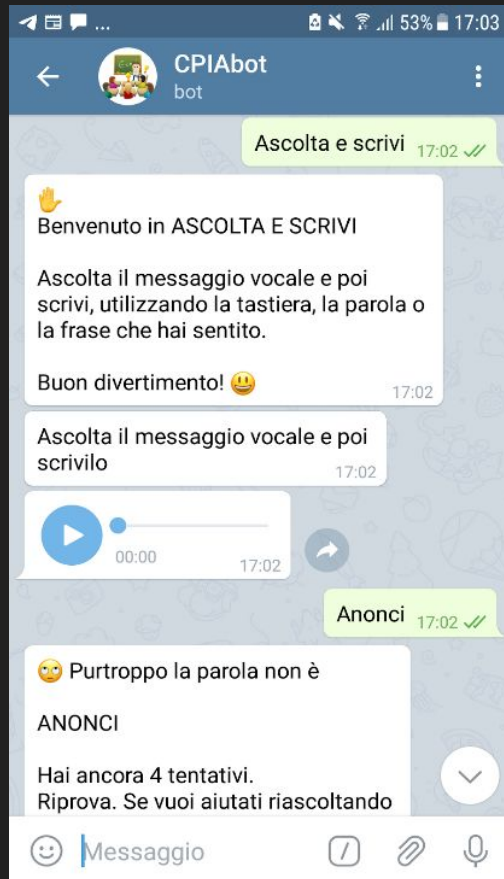


Syllabe



# CPIAbot - Rehearsal exercises

Listen  
and  
repeat



Guess  
the  
word



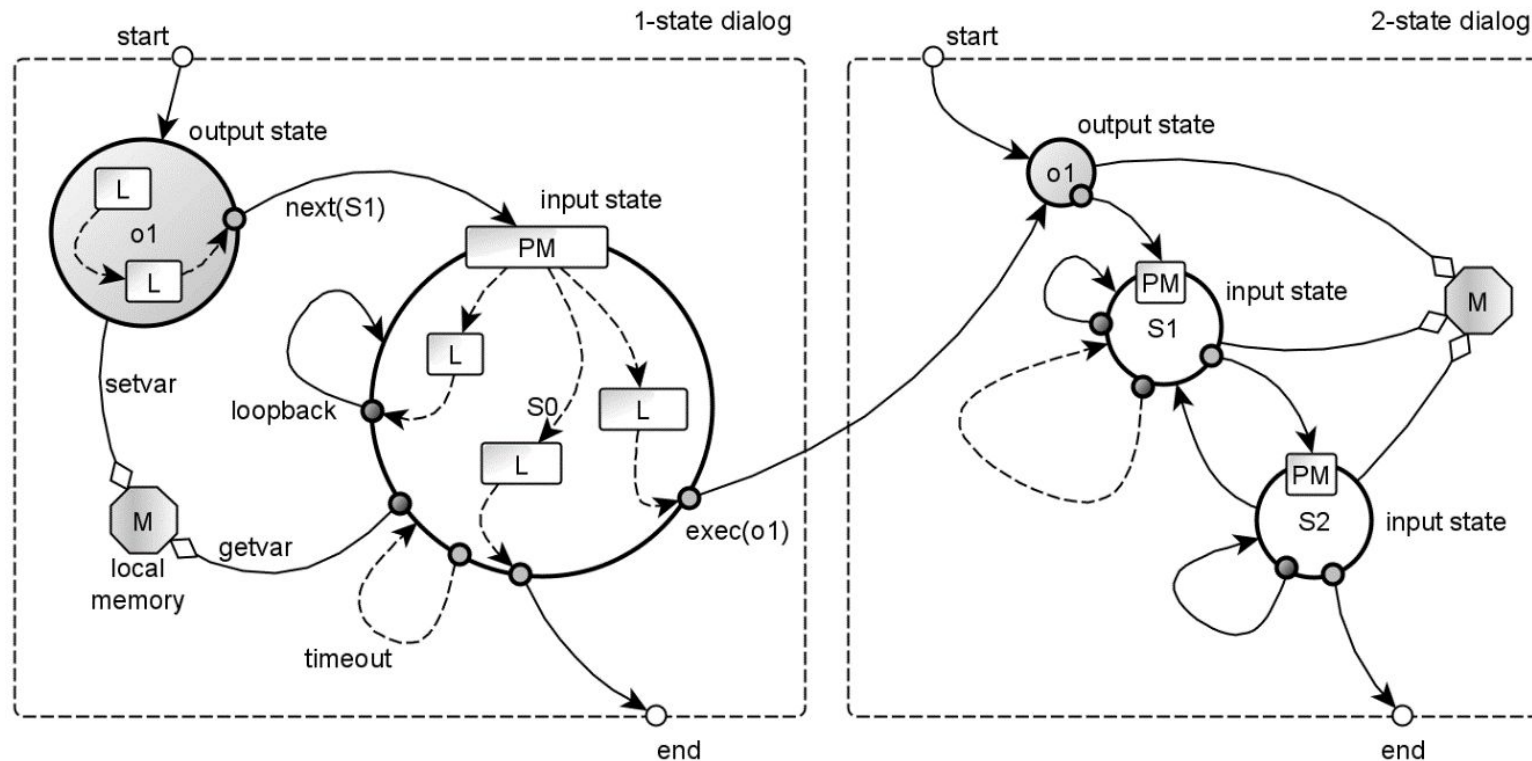
# CPIAbot - Simulated dialogues

Let's  
shop!



# CPIAbot - NaifJs Dialog Manager

Simulated dialogs have been implemented with NaifJs, a dialog manager we developed and we released as open-source: [github.com/solyarissoftware/naifjs](https://github.com/solyarissoftware/naifjs)



# CPIAbot - Technical issues

## SPEECH RECOGNITION

- Possible bias in L2 learners pronunciation recognition
- No syllables recognition

## PUSH TO TALK PUSH TO LISTEN BUTTONS

If compared to smart speakers, CPIAbot/telegram interface requires a push-to-talk/ push-to-listen action during the oral interaction

## LANGUAGE FIRST FOR LOW EDUCATED LEARNERS

Low educated and illiterate adults earners could face difficulties in interacting with a technology using the language they're learning

# Teachers feedbacks

Since CPIAbot experimentation in classes has been postponed due to lockdown, teachers' feedbacks concern the (unplanned) use of the chatbot for total distance learning. In teachers representations, different elements emerged:

- CPIAbot as a useful tool for language learning
  - A good means for vocabulary learning, thanks to multimedial materials
  - A stimulus for the students in the learning activities
- Portability and flexibility of the chatbot as positive elements in teaching and learning support
- Availability of students activities reports as a support for the teaching process
- Need of a students pre-training in CPIAbot use, during the classroom time, before the autonomous interactions with the chatbot

# CONTACTS

Conference paper:

“A Conversational Agent for Mobile Assisted Language Learning  
CPIAbot as a tool for learning italian as a second language”  
(<http://bit.ly/elml20cpiabot>)

For any question, please contact:

[giorgio.robino@itd.cnr.it](mailto:giorgio.robino@itd.cnr.it)

[fabrizio.ravicchio@itd.cnr.it](mailto:fabrizio.ravicchio@itd.cnr.it)

[simone.torsani@unige.it](mailto:simone.torsani@unige.it)

