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# WP5 - Integration

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## Outline

- Brief overview over the tasks
  - 5.1 Specification
  - 5.2 Graphical Interface
  - 5.3 E-pen Interaction
  - 5.4 Logging Functions
  - 5.5 MT Server
  - 5.6 Manual Gaze-to-word Alignment
  - 5.8 Replay Mode for User Activity Data



## Outline

- Highlight of some major challenges
- Demo
  - Prototype 1
  - Prototype 2
- Questions and discussion



## Specification

- Task 5.1:
  - "Specify the interfaces, data formats and programming languages to allow modular development of components."



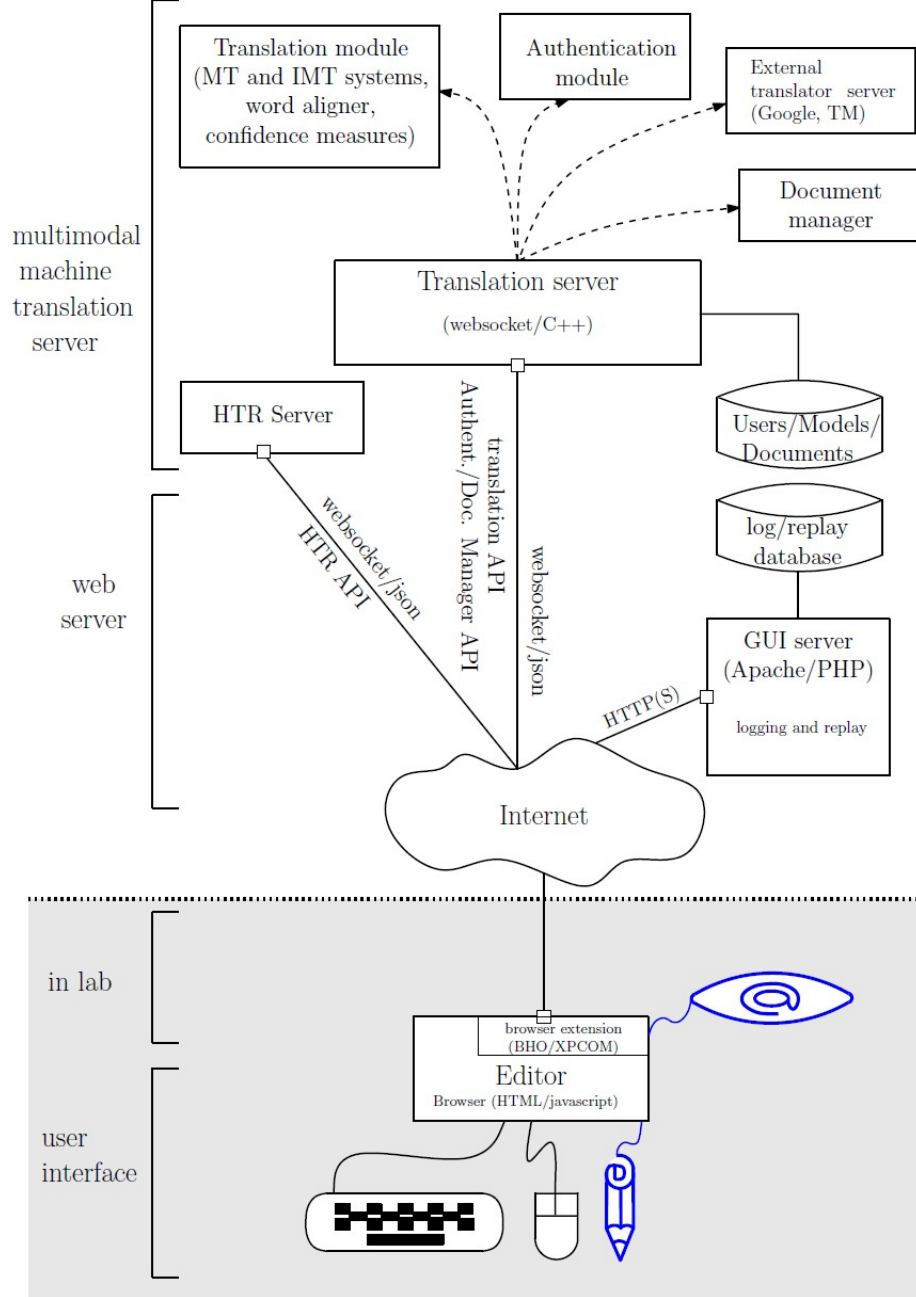
## Specification

- Client:
  - HTML 5 and JavaScript
  - jQuery with additional plugins
  - Browser extension(s) for eye tracking (C++)
- Server:
  - Apache 2.x running PHP 5
- Database:
  - MySQL 5

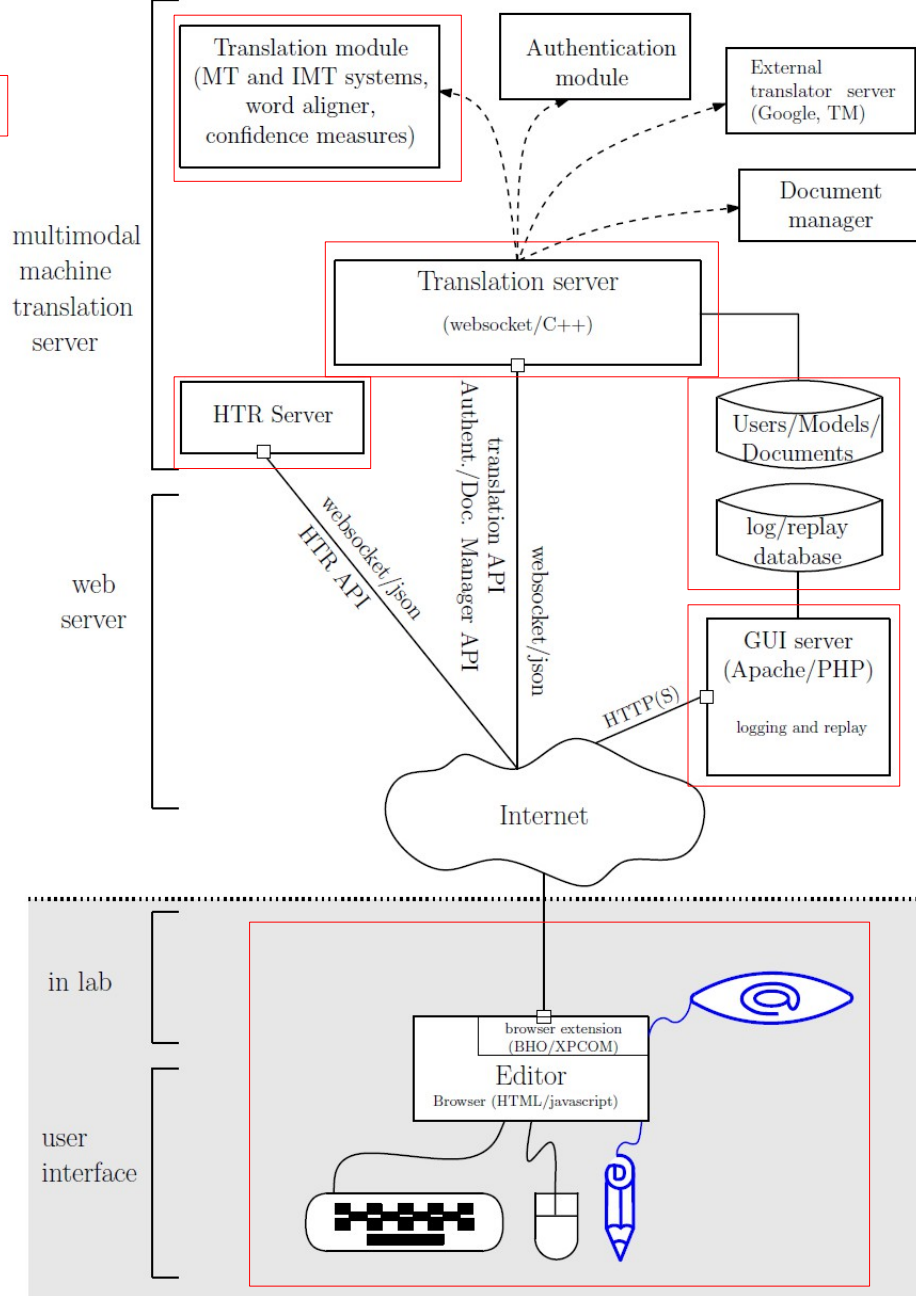


## Specification

- System components and architecture
- System API
- Data flow
- Data exchange format (Client ↔ Server):
  - JavaScript Object Notation (JSON)
- Persistence layer (Database table structure)



Already implemented





## Graphical Interface

- Task 5.2
  - "Specify and implement the CASMACAT editor including the visualisation and editing options."

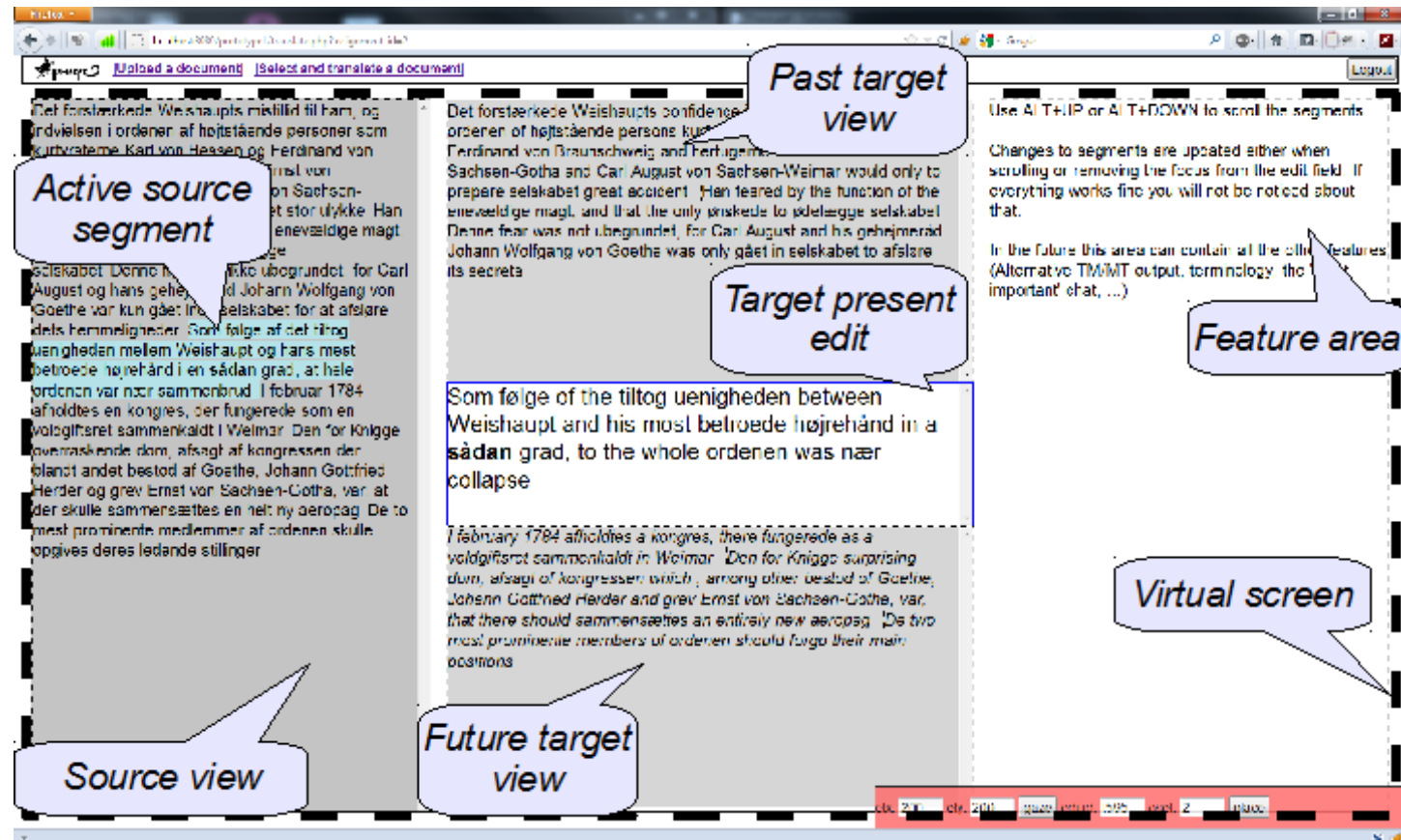
## Graphical Interface

- Visual and functional resemblance to commercial CAT tools
- Definition and implementation of shortcuts, e.g.
  - Switch to next segment
  - Copy source to target
  - ...
- Align segments
- Avoid scrollbars
- Use full screen space

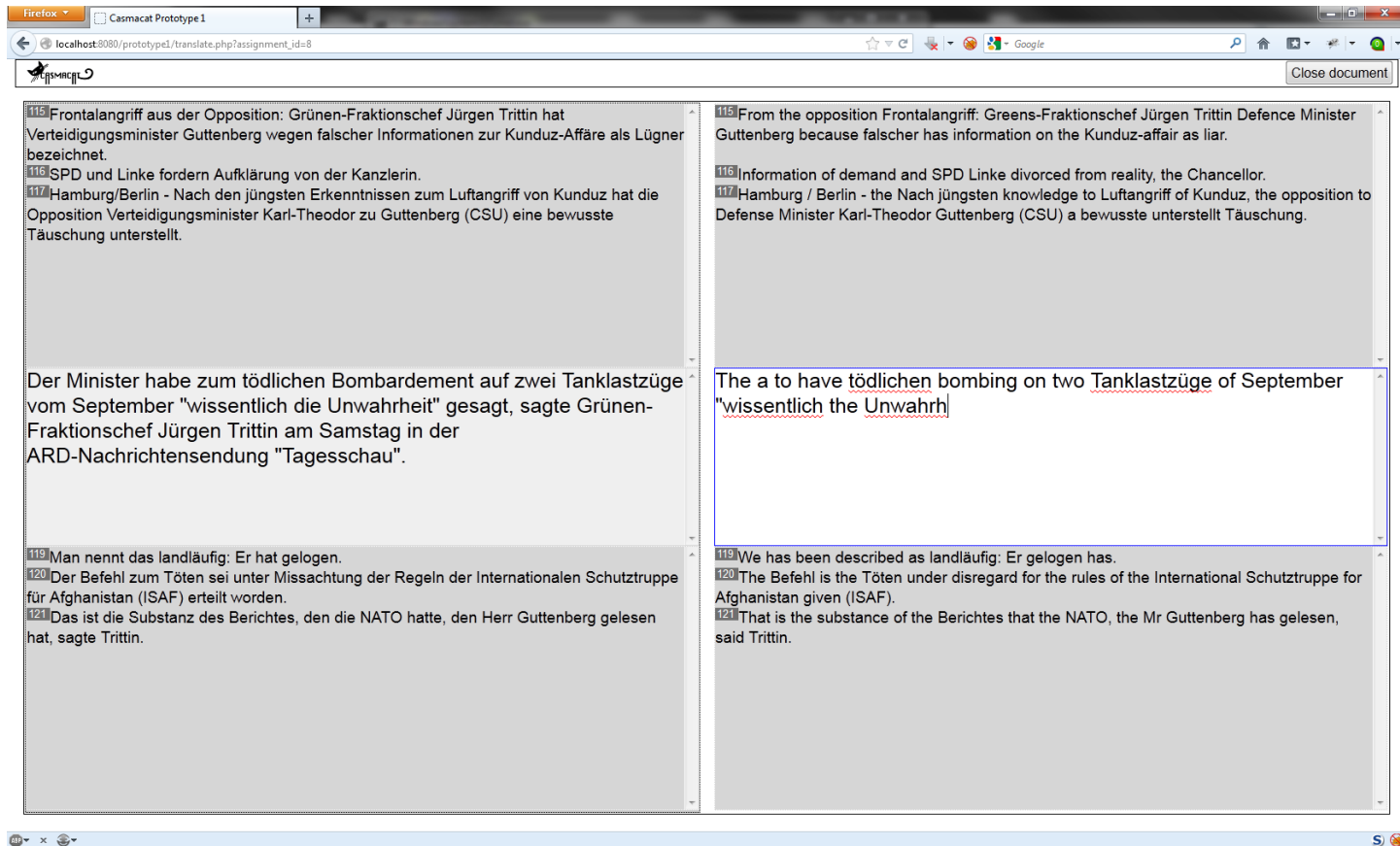
## Graphical Interface

- Regarding eye tracking:
  - Conservative UI approach chosen
  - Virtual screen concept
  - Same UI look over different browsers
  - Bigger fonts
- There will be an area for features, like
  - Dictionaries
  - Instant messaging
  - ...

# Graphical Interface



# Graphical Interface





## E-pen Interaction

- Task 5.3
  - "Specify and implement the e-pen interface and e-pen functions to remove, insert or replace a word or to swap groups of words."



## E-pen Interaction

- Implementation of HTR server finished
  - Supports word recognition
  - No gestures yet
  - No context information yet
  - Uses websockets
  - API similar to MT/IMT server
  - Basic HTML 5 test interface



## Logging Functions

- Task 5.4
  - "Specify and implement user activity data logging protocol."





## Logging Functions

- Specification of logged events, e.g.
  - Text changes
  - Keystrokes
  - Eye tracking data
  - Mouse clicks (but not movements)
  - Usage of shortcuts
  - E-pen actions
  - UI events, like resizing the window



## Logging Functions

- Data needed from a particular event, e.g.
  - Diff of a text change
  - Current cursor position
  - Character looked at
  - Clicked UI element
  - Selected text



## Logging Functions

- Storing and transferring the data
  - Log and upload data in chunks:
    - Store events in a list in the browser
    - If the list exceeds a given limit, upload this chunk to the server
  - Very scalable, keeps performance up
  - Doesn't interfere with user's activity



## MT Server

- Task 5.5
  - "Specify and implement the CASMACAT MT server, including API and database backend."



## MT Server

- Extended Google Translate like API
- Modular design (MT/IMT)
  - First MT prototype implemented in Python → next will be a faster C++ implementation
  - Basic IMT prototype also already implemented
- WebSocket support for fast (live) IMT prediction
- JSON format is compatible with Matecat
- Tokenization on server side
- Word-level confidence measures
- Online training

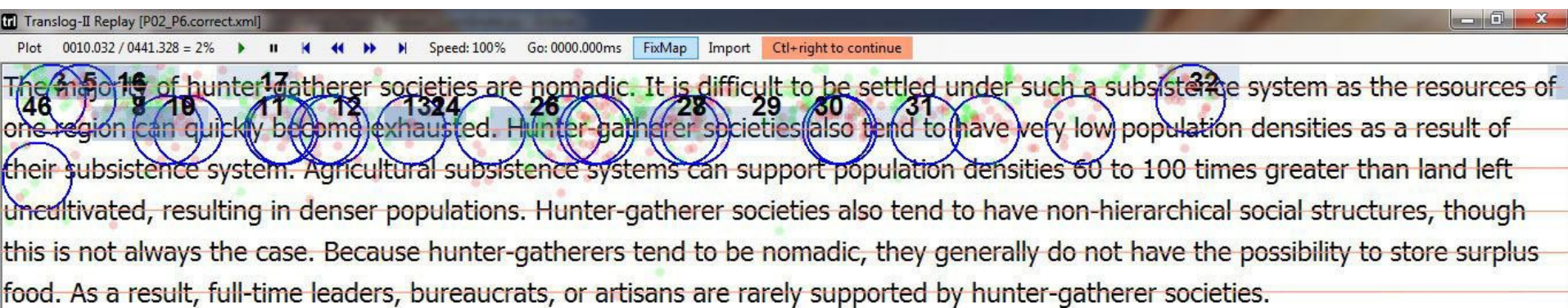


## Manual Gaze-to-word Alignment

- Task 5.6
  - "Implement a tool to manually correct gaze-to-word alignments."

## Manual Gaze-to-word Alignment

- Gaze data can be unprecise
- First prototype implemented in Translog-II
- 20 files have already been manually corrected
- Same functionality inside CASMACAT
  - Knowledge and algorithms will be transferred





## Replay mode for User Activity Data

- Task 5.8
  - "Implement a replay mode of translation sessions."



## Replay mode for User Activity Data

- Realized in the first prototype
  - Visualizes editing activities
  - Visualizes eye tracking data
- Allows for seeking forth and back in time
- Some automatic correction algorithms already implemented



## Outline

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## Some of the major challenges

- Integrating eye tracking
  - How to communicate between eye tracker and JavaScript?
  - How to do Gaze-to-character mapping?
  - How to replay correctly on screens with different size/resolution?



## Some of the major challenges

- Integrating eye tracking
  - Line wrapping still unsolved (cross browser problem)

### Firefox

Ferdinand von Braunschweig and hertugerne Ernst von Sachsen-Gotha and Carl August von Sachsen-Weimar would only to prepare selskabet great accident | Han feared by the function of the

dom, afsagt of kongressen which , among other bestod of Goethe, Johann Gottfried Herder and grev Ernst von Sachsen-Gotha, var, | that there should sammensættes an entirely new aeropag |

### Internet Explorer

Ferdinand von Braunschweig and hertugerne Ernst von Sachsen-Gotha and Carl August von Sachsen-Weimar would only to prepare selskabet great accident | Han feared by the function of the

dom, afsagt of kongressen which , among other bestod of Goethe, Johann Gottfried Herder and grev Ernst von Sachsen-Gotha, var, that there should sammensættes an entirely new aeropag |



## Some of the major challenges

- Key logging
  - How to log typing correctly for all languages?
    - Text changed event



# Demo



## Questions and discussion

- Thank you for your attention!