

## **ABSTRACT**

***Title:** Voice controlled electronic health record in dentistry*

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This PhD thesis is concerning with development of the complex electronic health record (EHR) for the field of dentistry. This system is also enhanced with voice control based on the *Automatic speech recognition* (ASR) system and module for speech synthesis *Text-to-speech* (TTS).

In the first part of the thesis is described the whole issue and are defined particular areas, whose combination is essential for EHR system creation in this field. It is mainly basic delimiting of terms and areas in the dentistry. In the next step we are engaged in temporomandibular joint (TMJ) problematic, which is often ignored and trends in EHR and voice technologies are also described.

In the methodological part are described delineated technologies used during the EHR system creation, voice recognition and TMJ disease classification.

Following part incorporates results description, which are corresponding with the knowledge base in dentistry and TMJ. From this knowledge base originates the graphic user interface DentCross, which is serving for dental data record. The entire application is voice controlled and it is possible to elicit the information by TTS module retrospectively.

On the end, results are summarized and possible follow-up development in this field is predicted.

## **KEYWORDS**

Electronic health record, structured data record, dentistry, voice recognition, text-to-speech, temporomandibular joint disorders.