

Workload calculation based on Air Traffic Controllers' utterances using Automated Speech Recognition

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This paper describes the usefulness of Automated Speech Recognition systems in Air Traffic Management environment and detected advantages to measure workload associated to air traffic control tasks. For the last ten years CRIDA (Center of reference for R&D in ATM) has been working to develop a mature system capable to extract information from ATCo utterances and assess workload from that information linked to different control events. This project started with ENAIRE (former AENA), Spanish Navigation Service provider, assessing the need to use ASR systems for air traffic simulators to create tools aimed to automatize pseudo-pilot tasks. Several commercial ASR systems have been evaluated using real recordings from ATM environment without obtaining high detection rates so an ad-hoc system covering environment and phraseology more linked to ATM was developed. As additional value, the information obtained from the transcriptions from real ATCo utterances using the developed system allowed to identify different types of control events which, helped by operational experts, could be translated to workload measures. This additional value became one of the main lines of investigation also using more operational information, weights and metrics to assess ATCo workload and this paper describes that process.