Smart Glove: Development and Testing of a wearable RFID reader connected to Augmented Reality Smart Glasses

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**Abstract.** The evolution of Precision livestock farming (PLF) has given the possibility to the farmer to obtain a large amount of information. However, to access the database, the operator often is forced to use PC or mobile devices, losing time during on-fields activities. In this context, the use of Augmented reality Smart Glasses (ARSG), such as HoloLens (Microsoft, USA), represents an interesting tool to consult the information in real-time leaving the operator hands-free. The work’s aim was to decrease the technological gap between the animal’s electronic identification to all the information linked to a specific animal. Specifically, the research focused on developing a smart wearable system composed of a prototype, called SmartGlove (SG), capable to link the RFID tag and ARSG, via Bluetooth connection. The ARSG displays all the information related to the animal stored in an online or offline database thanks to the development of a dedicated software. The use of the SG system allows the operator to visualize, monitor, and modify the information related to the animal during on-field activities. From the preliminary experiments, the system shows promising results in reducing the required workforce and improving productivity in farm management. Future works will aim to improve the reading capability of the SmartGlove, improving the antenna performances, expand the battery life, and to upgrade the ARSG software. The SmartGlove system will allow farmers to make timely decisions in the management of the animals, in line with animal welfare and precision livestock farming principles.