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DEVELOPMENT OF A SYSTEM FOR COLLECTION OF POSITIONAL-BASED DATA FOR HORSES

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Data gathering is a crucial part in many Equitation Science related projects, and this can be a very resource-intensive and time-consuming process. This project aimed to develop a tool to aid Equitation Science researchers in gathering positional-based data of horses. A prototype data collection system was developed, designed to enable cost-effective data acquisition, storage and presentation. The prototype system includes a GPS-enabled collar for collection of positional data, as well as a platform for presenting the gathered data online. Interviews were conducted with Equitation Science researchers in order to determine the requirements of such a system and to ensure that data obtained would be of sufficient quality. The GPS collar developed incorporates a microcontroller which allows tracking of horses within one metre. Furthermore, it is possible to extend the capabilities of the device using appropriate hardware to gather different types of equine data. The data gathered by the GPS collar are uploaded to a server where data are stored in a relational database ready for access by the scientist via a graphical user interface using a dedicated website. The user interface was developed using commonly practised interaction design methods such as user studies, heuristic evaluation and cognitive walkthroughs to ensure a user-friendly experience. Equitation Science experts contributed to both the design of the systems software in addition to the design and placement of the collar. It is anticipated that the GPS collar system can be used in Equitation Science projects that require identification of movement patterns of both individual horses as well as groups of horses, and will be able to provide measures such as distance moved and speed of movement. The system is designed to be future proof and able to be easily adapted according to the requirements of specific studies. For the Equitation Scientist in practice, the system provides the possibility to collect objective data from horses' activities by removing the effect of the potentially biased human observer, and might thereby improve the quality of the conclusions in the scientific study.

Lay person message: An electronic system has been developed to simplify the collection of positional-based data for equine research. The system consists of a GPS collar which collects data from horses and associated software accessed through a website for analysing and presenting the data. The system can be used in many different types of horse-based projects and will allow more objective data to be collected that can be used to understand horses and to improve horse welfare by removing the effect of the potentially biased human observer.

Keywords: Equine; Data recording; Positioning; GPS; Software; Welfare