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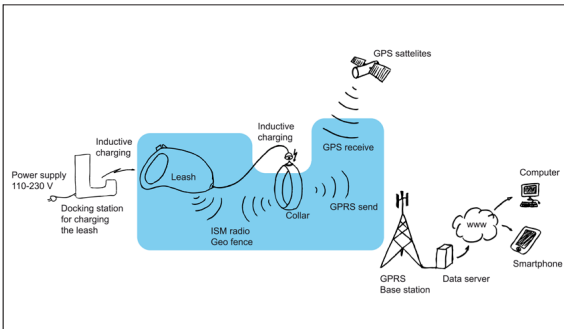


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Subject Area	Mobilkommunikation
Project Partner	BeanCounter EMS, Serneus GR

Pet Tracker with Advanced Leash Logic

The power-consuming tracking mode will only be activated when the pet has left a defined range

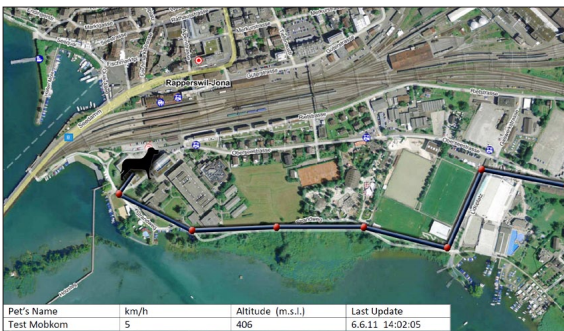


Outline of the pet tracking system with the discussed components highlighted

Introduction: All over the world, pets get lost all the time without being found again. The logical consequence is a tracking device on the pet that can localise its position and transmit it to an application on the internet. Within the last two years, several pet tracking systems have appeared on the market. But they are more like attachments for the collar and quite bulky, especially on smaller pets. Another issue is the short duty cycle of these devices caused by their permanent tracking operation. Therefore, the owner has to always be aware of a sufficiently charged tracking device in case of his or her pet breaking away.

Objective: In this thesis, a functional model of a pet tracking system has to be developed. The collar consists of a GPS and GPRS device to localise and transmit the position. The most important device on the collar is a low-power ISM radio system for the communication with the advanced leash logic. It detects if the pet is within a defined range from the owner. Only if the pet has left this defined range will the system start tracking and therefore the energy-consuming devices are used only when required.

Result: In the low-power ISM mode with powered-off tracking modules, the Pet Tracker has a battery lifetime of approximately 30 days with a 350 mAh battery. Such a battery is rather small compared to a common mobile phone battery with a capacity of 1,000 mAh. Thus, with a higher battery capacity, the battery lifetime can be extended about 2–3 times. Furthermore, with the ISM radio module installed working in the 2,4 GHz frequency band, it was not possible to determine multiple defined ranges for a virtual geo fence. Allocating a fixed range to a signal strength received will not work because of the antenna characteristics and the environment. The maximum range measured varied between 20 to 60 m.



A possible web application to show the pet's position



The functional prototype of the collar and the corresponding leash logic