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# Steuerungssystem für die Bewässerung von Fussballplätzen

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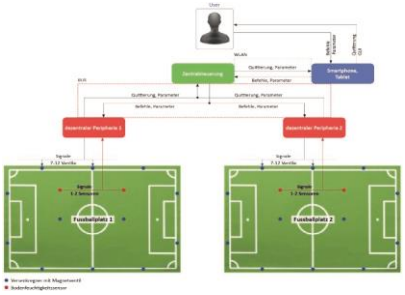
Irrigation plants for sports grounds are essential for numerous soccer clubs and communities and have to be applicable for artificial and natural turf. Such systems assure an equal water distribution and therefore a healthy and green lawn. Additionally, the maintaining costs for preservation can be reduced.

The objective of this bachelor thesis was the development of a regulation used for irrigation systems. As a final outcome, a newly and modern regulation has been provided. The core of this thesis consists of framing a concept and evaluating it with a prototype. The report contains the entire documentation of the sophisticated construction.

Usually, an irrigation system contains three different system components. This includes ten to twelve pop-up sprinklers, which are installed at the boarder or in the middle of the field and can be operated over magnet valves. Furthermore, there are rain or earth sensors which control the water demand of the plants. In addition, there is an irrigation control for establishing an automatic watering scheme or for controlling individual sprinklers manually.
For the end-user the developed system is still serving as an interface between programming and activation of the outlets and humidity sensors but the control system is now accessible over WLAN. It is possible for the user to select and confirm the desired program over the Internet, for example with a smartphone, tablet or PC. This facilitates the handling of the construction as the input has not to be done at the control panel itself.



functional overview of irrigation control

One of the main subjects was to design the regulation as modular as possible. Thereby it is expandable as needed or can be used for other watering utilizations. This difficulty has been detached with the development of decentralized peripherals. Up to eight valves can be connected to these peripherals. The communication between the controlling center and its circumference occurs over a BUS-system. In today's commercially available systems merely 12-24 outlets can be operated in contrast to the carried out prototype which can be expanded almost at discretion.

prototype of developed irrigation control

The connectives have been documented and tested. With the test results it was possible to evaluate the concept and it has been confirmed that the user-friendliness and the range of use of the system have been greatly improved.