

KEEPING THE GRASS GREEN AND THE WATER IN THE LAKE

There's just no getting around the fact that to have green spaces you need to use water.

And being in such a dry part of the country, keeping parks, golf courses and other areas green means you need a lot of water.

But UBC's Okanagan campus research is looking at ways to keep water use to a minimum while still maintaining green spaces for the community to enjoy.

Ramon Lawrence, associate professor of computer science, along with Ph.D. student Scott Fazackerley, and undergraduate students Andrew Campbell and Ryan Trenholm, developed and deployed sensor technology to reduce water used by irrigation at Senora Park in the Glenmore area as part of the Sustainable Community Development Grant Pilot Program. The program is a partnership between the City of Kelowna and the university.

The summer study is another way the university and community are working together to search for sustainable practices that will benefit the entire region. From May to October 2011, sensors placed in the park monitored the moisture level in the soil, determined when water was needed, and then operated the irrigation system accordingly.

Like most area parks, Senora Park has an automated watering system that comes on at certain times on certain days - like clockwork - even if the water is not necessarily needed.

"We can do better than that by making the irrigation system smarter," says Lawrence.

The sensors do just that. The sensors were placed in certain areas of the park and would only use the sprinklers when the moisture in the soil dropped below a certain level.

"It takes any human planning out of the loop," he says. "There is no more human error to decide when the watering will take place.

The information gathered by the sensors is also put on a website to better track when water is needed."

The computer science team designed a system that adapted water use to actual conditions, aiming to reduce the amount of water wasted. The approach used three different nodes: a moisture sensor placed into the soil to collect information on the amount of water present; a sensing node responsible for scheduling and reporting soil moisture readings; and a controller node responsible for controlling and scheduling irrigation times and duration. All information was transmitted wirelessly, eliminating the need for costly wiring. The result of the adaptive watering program was 54 per cent less water usage with no noticeable effect on the appearance of the lawn.

Lawrence says there are a lot of uses for the sensors, not only for parks but for agricultural and vineyard applications. Getting rid of the green spaces entirely would dramatically reduce the amount of water being used, but it is not a realistic option.

"Although xeriscape and other sustainable landscapes reduce water usage, they are not very practical for kids to play on," he says.

Lawrence says studies have shown a large percentage of all water usage in Kelowna is to irrigate landscaping and while the sensors can help reduce the amount of water used, they are still too expensive compared to the cost of the water.

However, there are major companies developing these technologies and Lawrence says that could bring the price down to a level more home owners, and municipalities, can afford.

"Whatever we can do to save water will make a big difference," he says. "This can be used not just in Kelowna, but anywhere you are using outdoor irrigation systems. Substantial water savings will occur as this technology is widely deployed." ●