



Smart Operational Agriculture Kit

Designed and implemented by Oz-dream team: David Burela, Dimaz Pramudya, Ed Hooper & Long Zheng.

The team consists of students from 4 different universities spread over 2 states, with 3 of the members being Microsoft student partners in 2007.

Background

SOAK was created to address one of the most important issues currently facing the world. Climate change has meant that farmers are seeing water become scarcer which is affecting their farming yields. 2007 saw Australian farmers having the worst crop production in 20 years, with a 59% reduction from the previous year.

12.6% of the world population currently suffering from malnutrition, therefore supporting farmers in increasing their crop yields will not only be of benefit to the farmers, it will have a further effect of enlarging the available food to the world population.

Overview

SOAK addresses the problem of limited water supplies by empowering the farmer to make decisions which affect water usage on their farm. Environmental sensors and weather forecasts are used to determine when watering their crops would be optimal. By implementing agriculture best practices farmers can specify what conditions must be met before SOAK will water their plants. An example being the farmer configuring the system to water grapes weekly during the initial growth stages, but after the grape vine has grown fruit to restrict the water supplied so as to drive up the sugar content (and sweetness).

Farmers can interact with SOAK directly through 3 targeted platforms, each with their own information level accessibility level. A Silverlight application is used for administration of the farm, a PDA application is used to give the farmer access to quick information about sectors when they are out in the field, and a Vista sidebar gadget is used to provide quick visual information about the farms water health.

With sensors keeping vigilant watch on the fields, farmers can be notified of a field reaching a critical moisture level via SMS or 'Microsoft Live Alerts'. This could be extended to notify them of a critical failure on the farm such as a water line bursting.

The principal differentiator for SOAK over current market offerings is the cheaper cost to install a SOAK implementation onto a farm. Standard server hardware and COTS sensor hardware can be easily integrated into the system bringing the entry requirements down within reach of most farmers.

Industry collaboration

Oz-dream team worked in collaboration with the Morning Star Estate (a winery estate) and the Victorian Farmers Federation to aid the development of the SOAK platform and have it to correspond to actual requirements a working farm would require.

