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| Irrig8 |
| Image result for farm |

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| 21/10/2017 | An Application for Sensible Farmers |

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| Abstract IRRIG8 is a web application designed to manage crop irrigation and promote water satiation for crops. It is user-friendly, combining programming with practicality in one simple and effective app. Several user input tools are used to customize how, when and under what conditions water should be pumped. |

Contents

[Abstract 0](#_Toc496380813)

[Problem Overview 2](#_Toc496380814)

[Assumptions 2](#_Toc496380815)

[Technical details 2](#_Toc496380816)

[Heading 3|three 2](#_Toc496380817)

Irrig8

An Application for Sensible Farmers

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# Problem Overview

Inadequate plant irrigation is a problem for many farmers across Canada. The growth of successful crops is dependent on several factors including proper watering. Using online datasets and crowd sourcing, an interactive web application was created to mitigate the problem.

# Assumptions

Several assumptions are made concerning the conditions under which the solution is feasible. The hardware/software interface between the sensors and the application are assumed to be properly synced. That is the only assumption we made.

# Technical details

The idea behind the application is the use of soil moisture sensors to detect the saturation of water in the soil at a given time. By detecting the water saturation, the pumps can be stopped through a feedback loop once the correct saturation level has been achieved. The app also uses open source data to collect information about the weather based on the inputted location. This solution to irrigating farm land also makes use of a calibration feature that is initiated through a sample watering session by the farmer that gives the device information about the patterns of water distribution across the farmland.

The web application contains several useful features and tools for farmers to track the status of irrigation on their crops. Having accessed the web app, the user finds three menus: Dashboard, metrics, and setup. The metrics menu displays tools like total output of water in Litres, number of pump cycles, number of crop types, and area of farmland. It also displays the weekly water consumption as a graph of Litres of water vs days in the horizontal axis. The dashboard menu displays precipitation, overview and crop status monitor. The precipitation module displays the current and upcoming weather. The overview module displays current hardware status including pump and moisture content sensor. Finally, the crop status monitor, has live updates for each crop and its water saturation level. The last menu feature currently available on the app is the setup menu takes in input from the farmer before implementing the pump system that is