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DEPARTMENT: Mechanical Engineering
COURSE: Structured Computer Programming

A

CONCEPTUALIZATION

A software application to control irrigation of farms. The application is used to detect farm need of irrigation, control irrigation interval based on input derived by study of a particular farms need, detect the availability of water in irrigation machinery, allow for user access to only authorized user(s), to control areas that need irrigation, etc. This software application is a necessity in many farms to prevent loss of crops due to lack of water & ignorance of water needs of plants.

SPECIFICATION

1. Application name: Farminihelp
2. Authorisation to settings and data by certain user(s).
   > The owner of the farm is entitled to access & edit the data that pertains to the crops.
   > Use of passcodes to access information.
   > Check of registry of farmland to determine legality of the farm ownership.
3. Interaction between software and irrigation machinery.
   > The software is connected to the machinery to turn on/off.
   > The software is interacting with the machinery to regulate the irrigation level needed by the farm and the different parts that need irrigation.
   > The machinery is controlled via the software and thus makes the work of irrigation of the farm easy and more efficient.
   > The software can detect faults & flaws of the irrigation machinery to correct or raise alarm.
4. Data collection by software that can predict the health of the crops.

5. The Farminhelp is available in IOS, Android and PC versions.

DESIGN

The application is having a simple and easy to use UI. The first page is the login/register page it also has an help & and about menu to give more description of usage of the application. The help menu gives vivid and instructional direction to the operation of the application, it also consists of a large documentation on the compatibility with different irrigation machinery types/brands.
The buttons are of bitmap style with an appicial outlook on the mix of colours. The warnings & reminders can be done through other personal devices.

IMPLEMENTATION

The software was programmed using python, Java, Ruby, C programming, MATLAB, SQL and was tested using sample farm data inputs and a miniature farm was used to test the hardware functionality of the application.

RELEASE AND UPDATE

The Farminhelp was released for use and is purchasable on many application purchasing sites and webpages. Feedback is also collected and encouraged to determine the level of upgrade needed and to also guide users to effective use of the application.

B Hardware and Software features of "Farminhelp"

HARDWARE

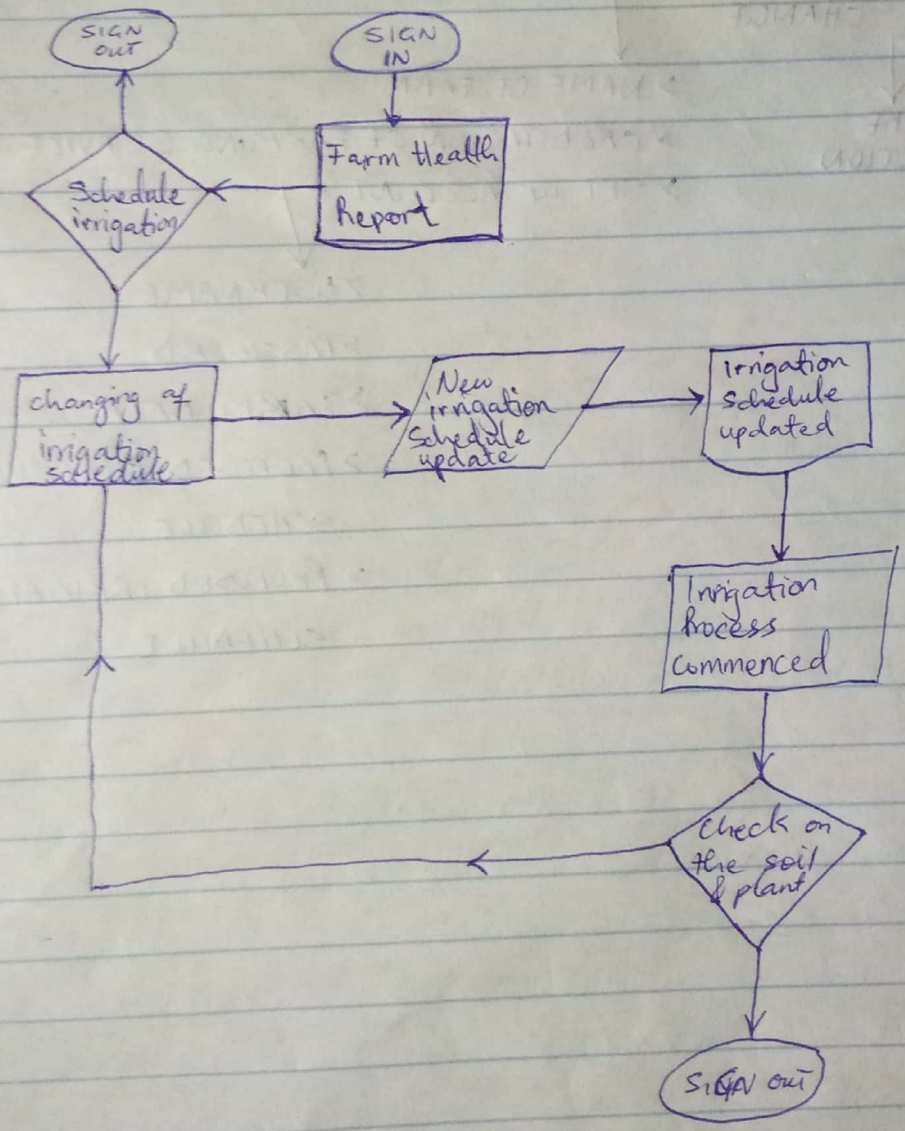
1. The software is uploadable on some new-age irrigation machinery connected to hand-held devices. It can also be uploaded on stationary computers that are connected to the irrigation machinery.
2. Employees (of different shifts) that have access to the application that

contains data of certain farms operate the software.

SOFTWARE

1. Database. backup of the farm data (number of crops per section, types of crops, etc.)
2. Application that connects with machineny and other devices to provide warnings and perform detection.

C.



5 Top-down design approach of application.