POLITECNICO
MILANO 1863

DREAM

Data-driven Predictive Farming in Telengana

DD

Design Document

Version 1.0 - 21/12/2021

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1. Introduction

1.1. Purpose

The main goal of this document is to provide more technical and detailed information about the DREAM application discussed in the RASD document. In the fact, programmers who develop the application could use this document as a strong guide. DD represents deep detail on application design, hardware and software architecture of the system in terms of components and interactions among those components. It also gives a detailed presentation of the implementation plan, integration plan, and testing plan. In general, the main different features listed in this document are:

- The high-level architecture
- Main components of the system
- Interfaces provided by the components
- Design patterns adopted
- Implementation, integration and testing plan

1.2. Scope

DREAM is an application that is provided for both farmers and policymakers. Policymakers could manage farmers via it and farmers could use published data by the application for farming purposes. DREAM uses some specific data about meteorological forecasts, the humidity of the soil, amount of water used for irrigation and then allows farmers to use this information for farming purposes. DREAM also provides a forum for sharing experiences or problems with other farmers. When a farmer creates a problem, he/she is allowed to choose who could answer the problem (farmers or agronomists, or both of those). Also, farmers could create discussions and share experiences with other farmers. Farmers insert their information such as production amount, amount of usage water, quality of production. Then Policymakers observe the farmers' activities and label them as good farmers or bad farmers. If a farmer labeled as a bad farmer gets technical guides from agronomists. This way policymakers allow to manage farmers and by giving special guides help to farmers. More detailed information can be found on the RASD document.

1.3. Definitions, Acronyms and Abbreviations

1.3.1. Definitions

Definition	Description

1.3.2. Acronyms

Acronyms	Description
DREAM	Data-dRiven prEdictive fArMing in Telengana
DD	Design Document
RASD	Requirement Analysis and Specification Document

1.3.3. Abbreviations

Abbreviations	Description

1.4. Revision History

Version	Date	Modification
1.0	21/12/2021	First version

1.5. Reference Documents

- Specification Document: “01. Assignment RDD AY 2021-2022.pdf”
- UML diagrams: https://www.uml---diagrams.org/
- Slides of the lectures
- IEEE/ISO/IEC 29148-2018 - ISO/IEC/IEEE International Standard - Systems and software engineering - Life cycle processes - Requirements engineering

1.6. Document Structure

- **Section1**
  Brief description about DD and introducing purpose and scope. Also, including definitions, acronyms and abbreviations

- **Section2**
  The main part of DD is this section that contains architectural design choice, includes all the components, the interfaces used for the development of the application. Also, it contains deployment view, runtime view. In the end, is explained the architectural patterns chosen with the other design decisions.

- **Section3**
  Contains how should be the user interface on mobile applications.

- **Section4**
  Contains the traceability matrix that shows which components satisfy certain requirements.

- **Section 5**
  Including the implementation plan, integration plan, and testing plan, and shows how these plans are executed.

- **Section 6**
  Shows how much time is spent by each member of the group.

- **Section 7**
  Includes the reference documents.

6. Effort Spent

- **Student 1:**

Topics	Hours

- **Student 2:**

Topics	Hours

7. References