

# Prototype Report

## Farm Worker Safety Application

### Team 09

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October 17<sup>th</sup> 2016

# Version History

Date	Author	Version	Changes made	Rationale
10/12/16	Juan Andrade	1.0	<ul style="list-style-type: none"> <li>Initial version</li> </ul>	<ul style="list-style-type: none"> <li>Draft for FCR ARB</li> </ul>
10/17/16	Juan Andrade	1.1	<ul style="list-style-type: none"> <li>1<sup>st</sup> Prototype for Farmworker Safety Application Added.</li> <li>2<sup>nd</sup> Prototype for Farmworker Safety Application Added.</li> </ul>	<ul style="list-style-type: none"> <li>Mitigation of some the system's high risk features were addressed through the development and planning of these two prototypes.</li> </ul>

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# 1. Introduction

## 1.1. Purpose of the Prototype Report

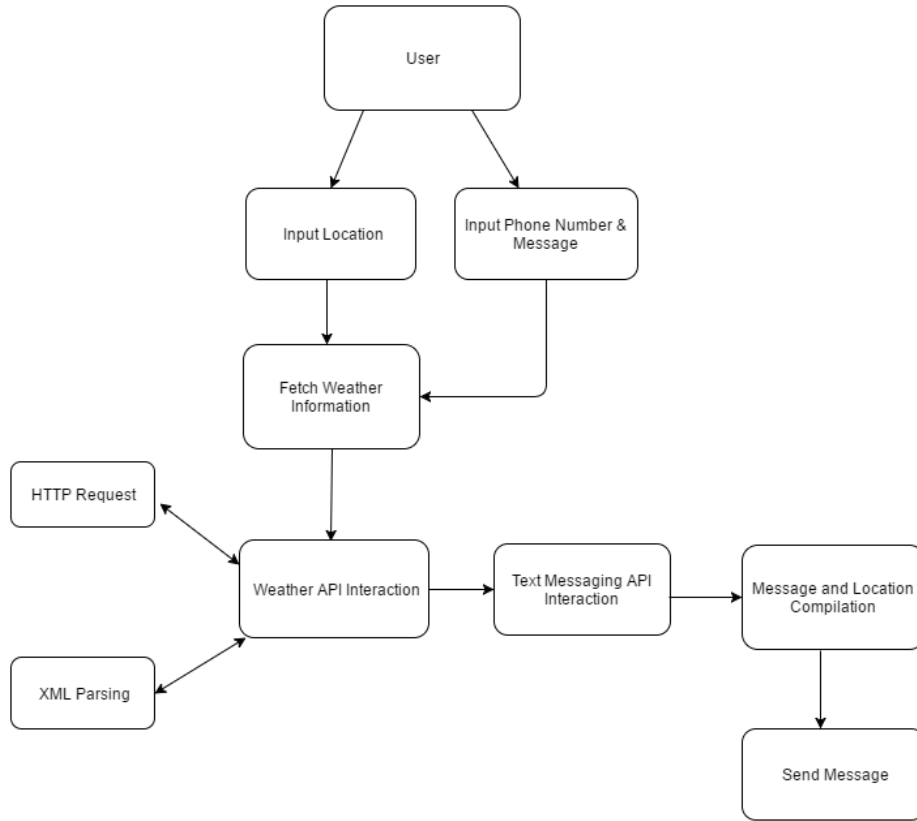
The prototype report is a tool that allows to communicate to the client, how the high risk items and/or functionalities of the project are being addressed, through the development of one or several prototypes. The successful development of those prototypes serve as a way of mitigating those risks and it can also be used as feasibility evidence for all the features of the project, which provides the team with a hands on experience

## 1.2 Status of the Prototype

We developed an initial prototype, that consisted in developing two high relevance features, the retrieval of the weather information, which involves the interaction with a Weather API and sending text messages which also involves the interaction with a SMS Text Message API.

We also developed a second prototype, that consisted on mapping out the process flow of a crucial feature of the system, which is how to ensure every farmworker receives appropriate and accurate weather information depending on his current working location.

## 2. Navigation Flow



**Figure 1: Navigation Flow of Prototype I – Text Messaging and Weather Functionality**

### 3. Prototype

#### 3.1 Prototype I - Weather Fetching & Text Messaging Functionality

##### 3.1.1 Purpose of this prototype

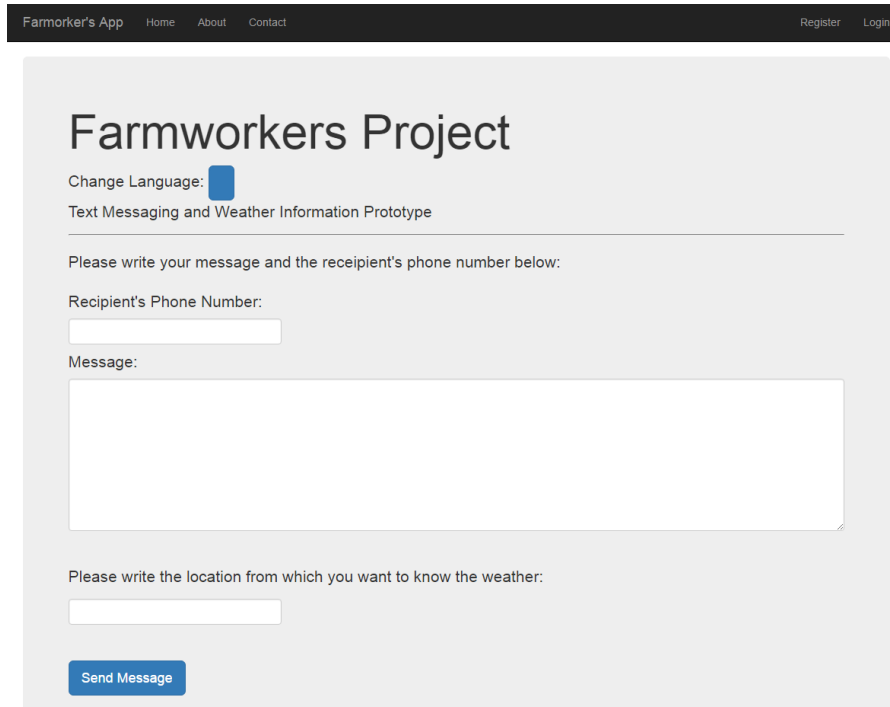
One of the most important functionalities of the system as specified by the client are the system’s notifications and the weather information retrieval (to make it available to the end user). Therefore, the objective of this prototype was to determine if it was possible to implement this features and how exactly would that take place (in regards of ease of realization) by precisely selecting the API’s that were going to be used to reach this goal, this would allow us to predict with more accuracy the time that needed to be invested to develop this section of the project, any compatibility issues or bugs that may occur along the way, this way we are able to plan ahead and increase the probability of delivering a quality product in a timely manner.

The Framework selected to develop the prototype was ASP.NET, the programing language C#, the Weather API selected for the prototype was Open Weather Map API and the Text Messaging API was Twilio.

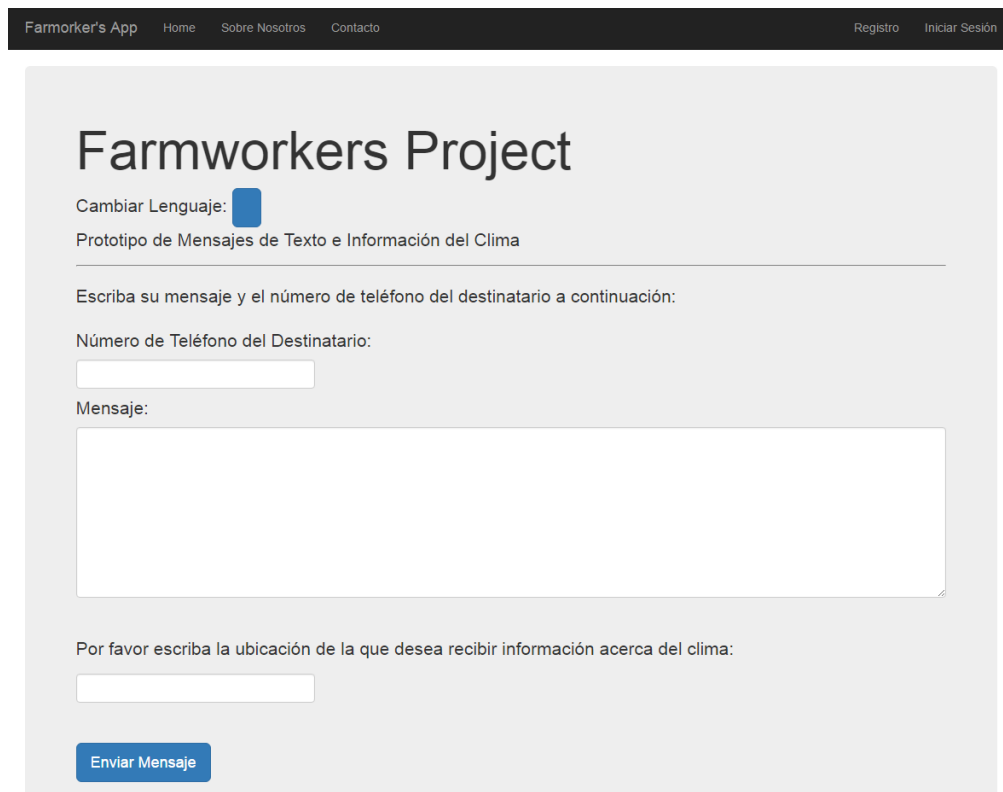
**Table 1: Prototype I – Text Messaging and Weather Functionality**

Description	The following screenshot, corresponds to the User Interface of Prototype I, which shows the required fields that need to be input by the user, in order for the prototype to perform its activities.
Related Capability	<p>The prototype provides the following functionalities:</p> <ul style="list-style-type: none"> <li>Retrieval of Weather Information According to Input Location.</li> <li>Send SMS Text to Designed Phone Number, with a custom message and the current Weather Information.</li> <li>Bilingual Interface (English and Spanish)</li> <li>Bilingual Weather Information (English and Spanish).</li> </ul>
Pre-condition	The user inputs the recipient’s phone number, a custom message and the desired location.
Post condition	The user will receive a text message to the designated phone number, the custom message and the weather information from the location, in the selected language (English or Spanish).

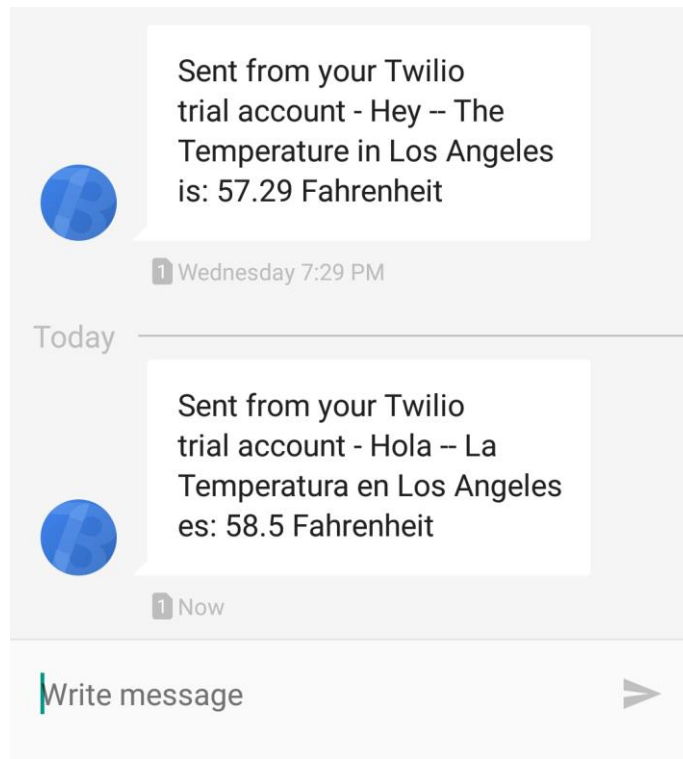




**Figure 2: Screenshot - Prototype I – Text Messaging and Weather Functionality (English)**



**Figure 3: Screenshot - Prototype I – Text Messaging and Weather Functionality (Spanish)**



**Figure 4: Screenshot - Prototype I – Text Message Received (English/Spanish)**

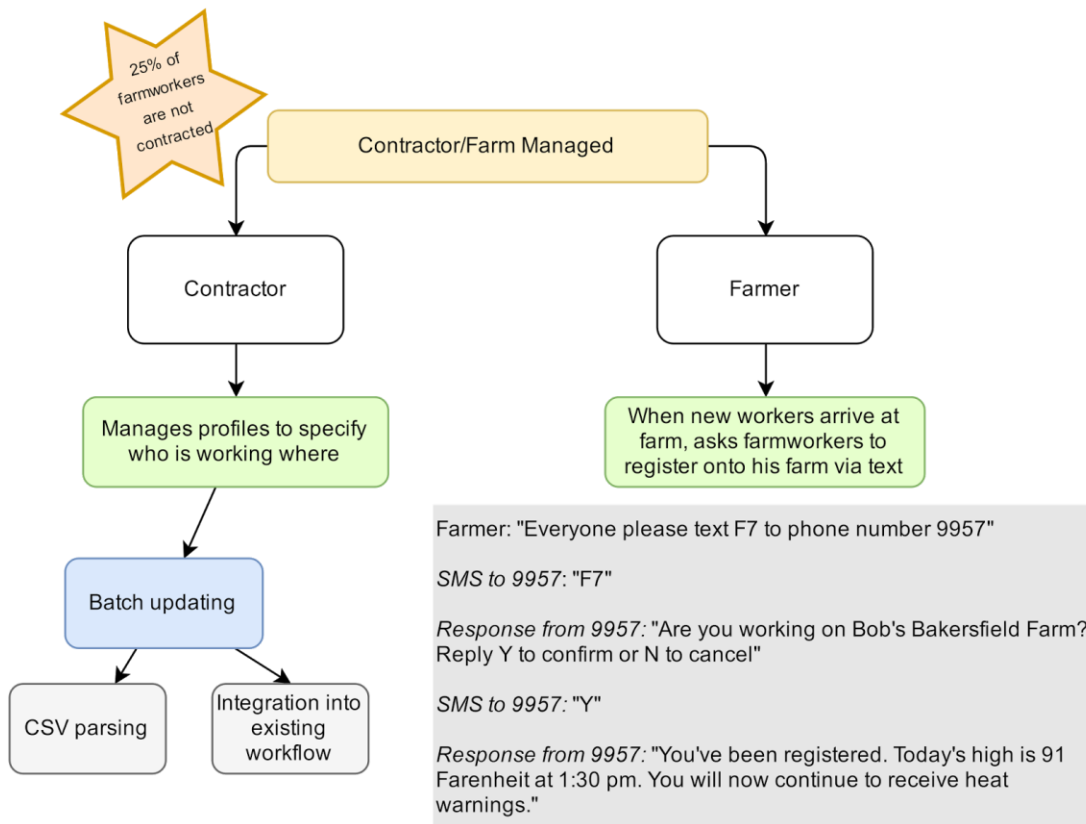
### 3.2 Prototype II - Farm Worker’s Current Work Location Functionality

#### 3.1.1 Purpose of this prototype

Getting the accurate location of a farm worker is critical for fetching and delivering relevant weather information, therefore we needed a way to guarantee that this information was accurate even if a farm worker changed his work location periodically. Therefore, by developing this prototype, we would be able to determine the feasibility of the proposed system and process-barriers to adoption thru discussion with stakeholders, it would also allow us to formalize this important process internally within the team.

**Table 2: Prototype II – Text Messaging and Weather Functionality**

Description	The following figure, corresponds to the flow chart of the process to determine the farm worker’s accurate current location.
Related Capability	<p>The prototype describes the following functionalities:</p> <p>Update of the Farm Worker’s location entered by the contractor at the beginning of a work day. (Can be done through batch updating)</p> <p>Update of the Farm Worker’s location entered by the farm worker via Text Messaging, upon the advisement of the farmer at the beginning of a working day.</p> <p>Bilingual Interface (English and Spanish)</p> <p>Bilingual Weather Information (English and Spanish).</p>
Pre-condition	<p>The contractor inputs the farm worker’s current location through a batch update file.</p> <p>The farmworker receives a text message prompting him to enter his current working location. The farmworker enters a specific identifier code of the farm he’s working at that moment.</p>
Post condition	The farm worker receives a confirmation text message of his location being updated successfully and the day’s temperature forecast.



**Figure 5: Prototype II – Farm Worker’s Current Work Location Functionality**