# Interactive Farm Map Project

### Project Overview

Currently there is a national push to promote the use of Information Technology on-farm. However, most of the IT products on offer are for compliance activities imposed on farmers, rather than growing out of farmers’ needs for more productive farm management tools. Moreover, the IT solutions tend to be more complex and less familiar than the manual tools they replace, further reducing farmers’ motivation to take them up.

The objectives of this project are:

1. To explore the potential for information appliances to simplify and accelerate the integration of IT into day-to-day farm management.
2. To develop a prototype practical farm management tool.

A farm wall map showing paddock layout and area is a basic management and planning tool for NZ farmers. It is also expensive to produce, requiring aerial photography. This project looks at using GoogleMaps as the basis for developing a farm map. The map would be overlaid on the GoogleMap view of the farm and show paddocks and their areas using data downloaded from the farmer's GPS.

The map would be interactive. Additional information would be viewed or inserted by touching relevant parts of the map. In effect, the map provides the interface to a comprehensive farm management system.

To simplify installation and administration issues, the farm map would be implemented as a web application with software and data stored on a remote server.

### Special Topic Tasks

The objective of the special topic is to develop an initial prototype that demonstrates the essential interactivity and functionality of the wall map. This includes:

1. Locate and load the correct farm map from GoogleMaps.
2. Draw a set of paddocks on the map, whose coordinates are stored in xml files (1 per paddock).
3. Provide for each paddock to be labelled with up to three pieces of data (e.g. name, area, stock count) one of which may be an image.
4. Paddock data is persistent and updateable (stored in a database).
5. The farm map may be updated by selecting a function on the LHS of the screen (running a database query), e.g. showing current location of cows.
   1. Some paddocks may be highlighted (e.g. border colour changed or area filled-in).
   2. Paddock labels may be changed to show different data.
6. If a paddock is touched (or clicked) on screen
   1. The paddock is highlighted
   2. Paddock data is displayed in a box in the LH corner of the screen.
   3. This data is updateable.

The initial prototype:

* should be implemented for paddocks, but provision made for its extension to other farm entities e.g. buildings, or tracks;
* should be implemented to show (and update) location and grazing history of stock but should be easily extendable to other queries; and
* should support touch screen interactions.

To complete the special topic it is expected that the following steps will need to be taken:

1. Explore the GoogleMap APIs.
2. Produce a basic prototype that involves:
   1. Drawing a polygon over a GoogleMap by reading a set of co-ordinates.
   2. Displaying a message box whenever the user clicks inside the polygon
   3. Displays some information inside the polygon e.g. name, area.
3. Produce a second prototype that
   1. Draws coordinates, displays information from a database
   2. Replaces the message box with a window that displays information and allows that information to be updated and saved to database.
4. Document the requirements for an interactive farm map and sketch a design.
5. Implement a farm map which implements an agreed subset of these requirements.

### Deliverables

1. Prototype requirements and design documentation.
2. Interactive farm map executable.
3. Brief report summarising and evaluating what has been accomplished.