

### Background

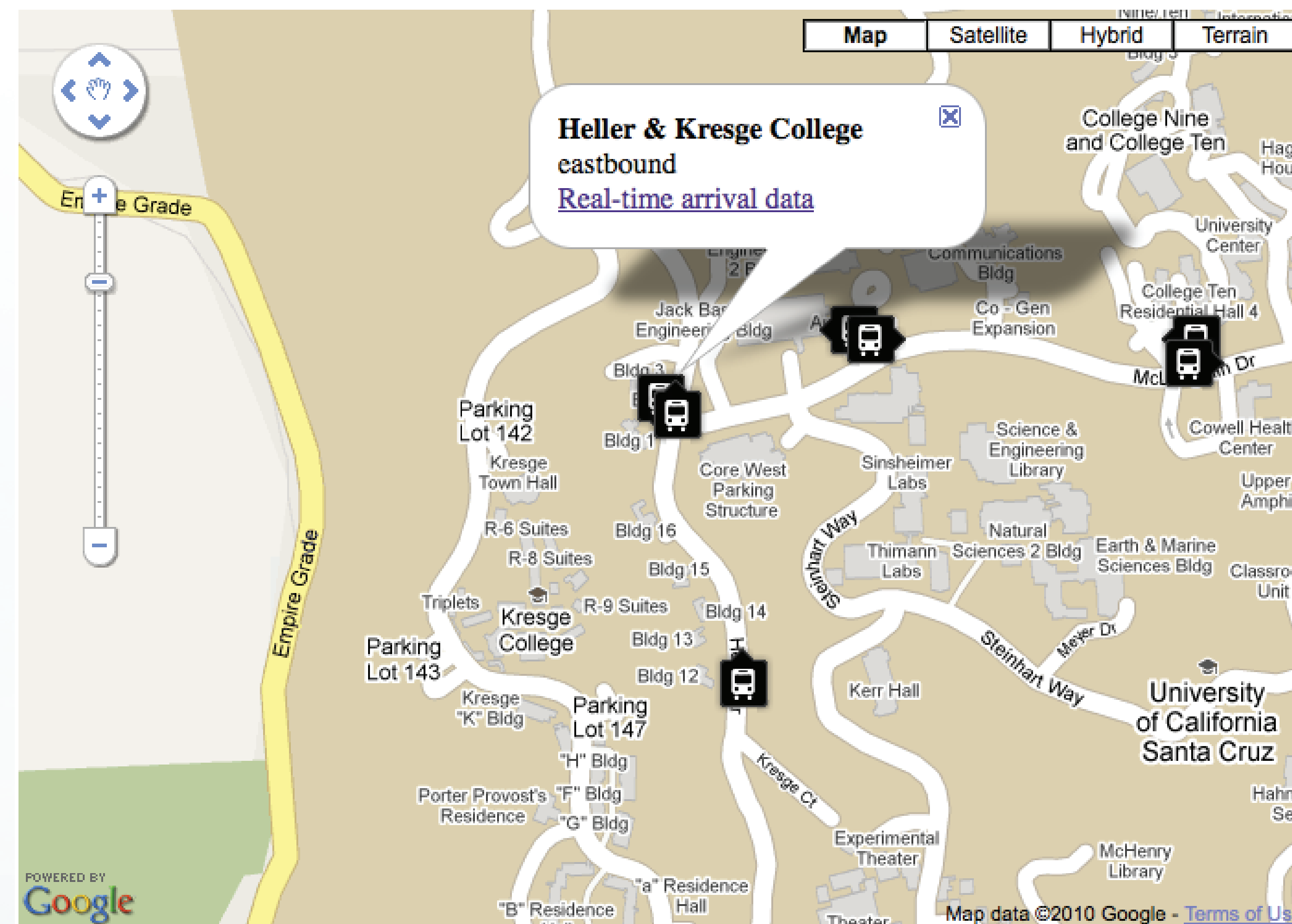
- Nodes are installed in UCSC buses as part of the SCORPION testbed
- The Nodes transmit GPS data every three seconds
- Data is stored in a MySQL database

### Motivation

With a program to predict arrival times we hope to achieve:

- Reducing the uncertainty about the buses
- Increased number of riders
- Riders have more control and can better plan their travel
- More nodes running means more information for network research

### Interface



### Zones

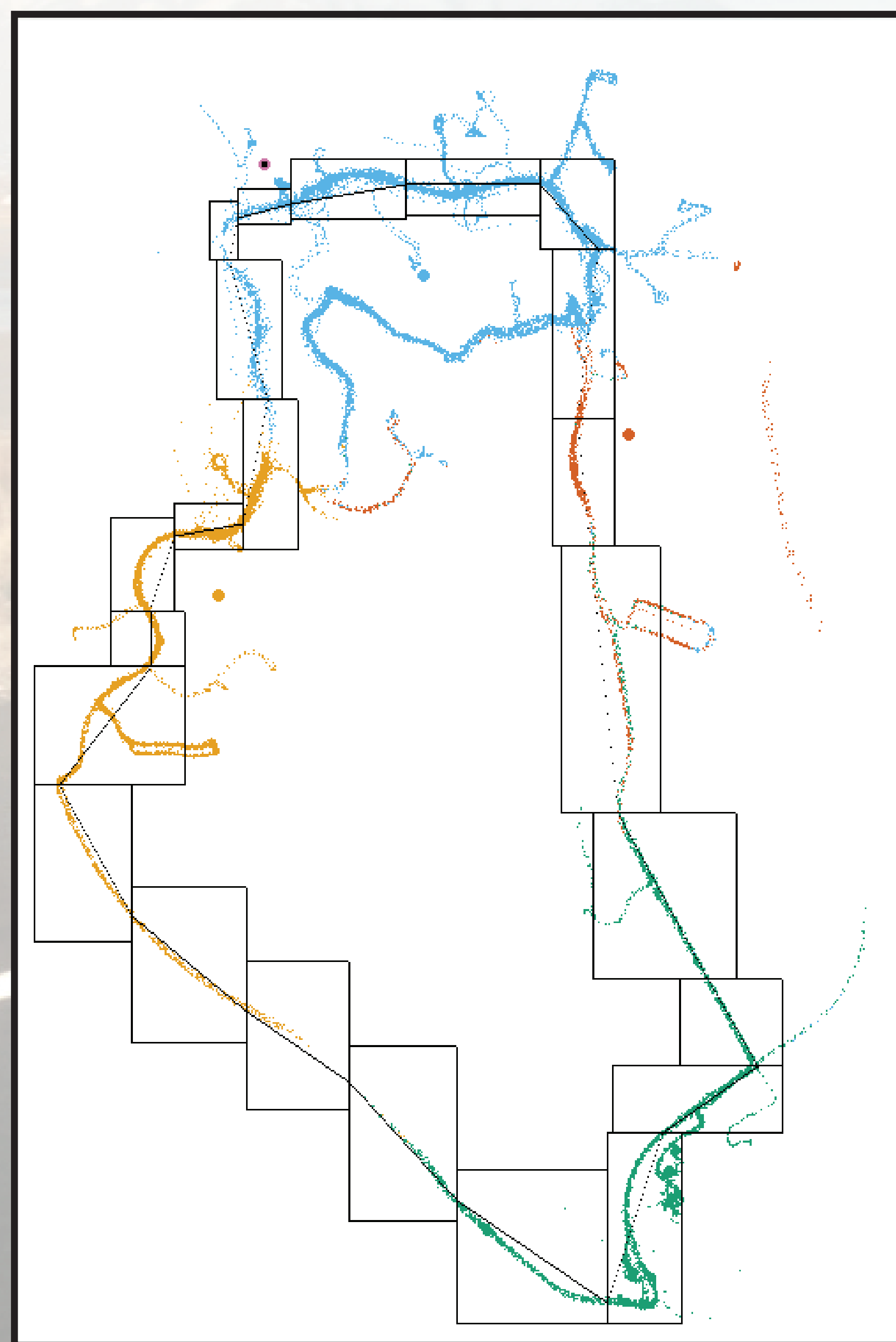
Reasons for splitting the UCSC campus into zones:

- Breaks down one large problem into many smaller, manageable problems
- Easier to approximate the route by straight lines
- Error management
- Provides convenient way to sort bus behavior



### Design

- When a user clicks a bus stop it provides a link to real-time arrival data.
- The program calculates the estimate by adding up the time through each zone between the stop and the bus.
- The program also accounts for partial distances of the stop or bus within a zone.



Above: Sample GPS data for one day along with zone outlines.

**Heller & College 8/Porter  
Eastbound**

Stop ID#29  
Current Update: 07:06 PM

Route	Minutes until Arrival	Arrival Time
Loop	3	07:09 PM

Nearby Stops:  
[Heller & College 8/Porter Westbound](#)

[Back to Map](#)

Above: Actual Screenshot of User Interface

