

# CAR SIMULATION

Aaron Liu  
Dan Neitzke  
Xiaofan Yang

2004 – 2005

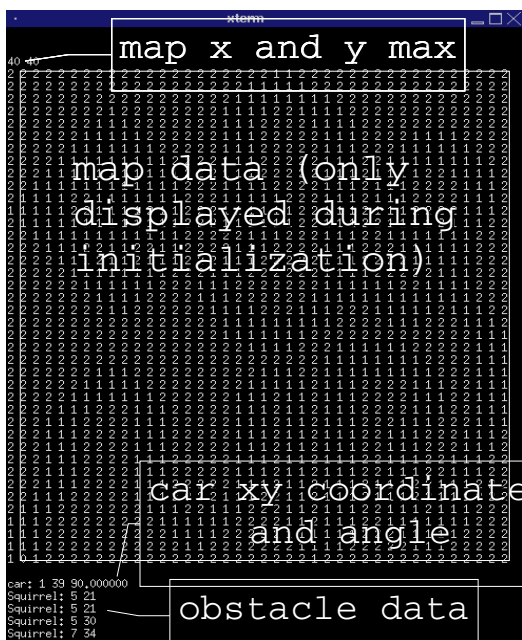
Computer Systems Techlab

## Abstract

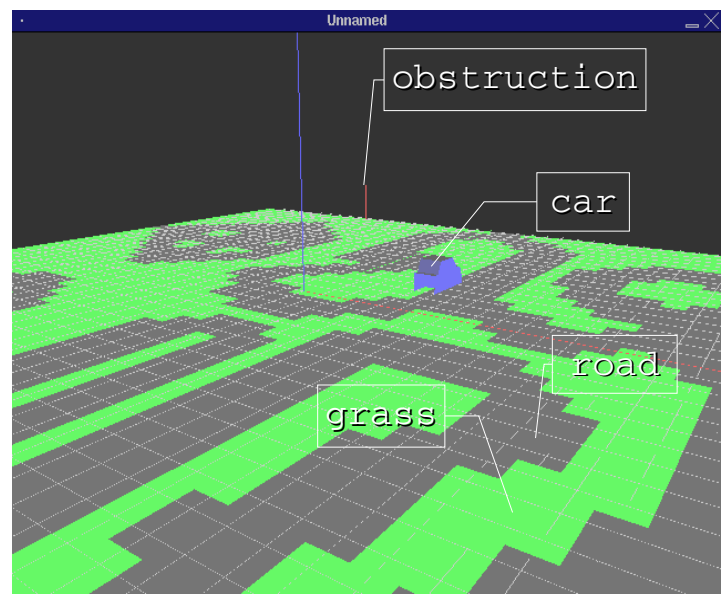
This project will involve creating a virtual model of an automobile in a virtual environment. The vehicle will be able to traverse the environment and respond to hazards merely by using its own artificial intelligence.

## Introduction

Ultimately, this project will be used to simulate car-related incidents from the real world. By working with this program, users will be able to benefit from responses to scenarios that may have hazardous consequences in real life. By showing real people the decisions of robots, human drivers will attempt to replicate the robots' acceptable actions.



```
map x and y max
map data (only displayed during initialization)
car xy coordinate and angle
obstacle data
car: 1 39 90,000000
Squirrel: 5 21
Squirrel: 5 21
Squirrel: 5 30
Squirrel: 7 34
```



## Results

The two car programs, the data and the graphics, interact successfully. The graphics program can successfully read in maps of proper format. The car camera has zooming, panning and rotating functions. The car model successfully loads. Normals and lighting work smoothly. The car turns on 45 degree angles based on its movement. Using one of two data programs, the car can either run continuously, or it can run once while dodging an obstacle, depending on which demonstration is necessary. The car display runs at 20 frames per second.

## Process

Our project was basically divided into three sections-graphics, AI, and the basics (environment, objects, etc). Each person took on one of these areas, and expanded on it. After certain time intervals, we all came back together and integrated some code. The AI code was inserted into the basic program. The graphics program then ran the combined code, displaying the contents of this poster.