

# **The Fugitive / Chase Bob: Location Based Game for Wi-Fi Devices**

January 20, 2006

by

**William Tsui**  
42990028

EECE 496 Project Partner: Si Colleen Qin



University of British Columbia  
Faculty of Applied Science  
Department of Electrical and Computer Engineering

EECE 496: Engineering Project  
**Proposal**

Project Code: SSF-W06-01

Supervisors:  
Dr. Sidney Fels  
Dr. Rodger Lea

# PROJECT PROPOSAL

## Objectives

The objective of this project is help build a fun location-based game in which three participants can communicate with each other to track down and surround a virtual object called Bob. Bob will be positioned in a pre-determined location on campus; the UBC Wi-Fi network will be used to track player positions and to locate Bob. To achieve this goal, the accuracy and coverage of the Place Lab Wi-Fi positioning software will have to be verified across different areas of the UBC campus. To ensure that the game will be usable, the most recent version of the game will be checked against the user requirements. After evaluating the code, changes or additions to the game will be made. In addition to evaluating the game, a user study will be conducted where the users will play the game, and provide valuable feedback regarding the usability and playability of the game so that further improvements can be made.

## Tasks

The first major task, which is critical to the playability of the game, is to characterize the coverage and accuracy of the Place Lab positioning software across UBC. Testing will be done to check the accuracy of Place Lab; in the cases where the positioning is not as accurate, war walking will be used to obtain better GPS coordinates for those areas. Areas with weaker Wi-Fi coverage that can make the game difficult to play will be noted and perhaps be excluded from the game. This part of the project will be performed with Colleen Qin, the corresponding EECE 496 student working on this project.

After validating the positioning system of the game, the focus will be on making the game usable by the players. The game requirements will be checked against the current system; changes and improvements will then be made. Field testing will be included in validating the game requirements. From the field testing, game parameters such as the area of the playing field or the distance to trap Bob will be tested and modified. The starting location of Bob must also be determined. The number of improvements that will be made to the game and the user interface

(UI) will depend on the scale and importance of the improvement. The necessary changes will be determined as the project progresses with the changes being split between me and Colleen. Some changes will be required before a user experiment can be conducted in the middle of February; these changes will be given priority.

The current replay feature of the game helps to analyze player movements and strategies after a game has been played by replaying the game for the participants to better understand their in-game behaviour and strategies. An addition to the replay tool will be made so that written messages exchanged between participants will be logged and played back.

Another task will be to assist in user experiments which will be conducted in order to obtain feedback on the current system and how it can be improved. The user study will examine aspects of the game such as how well the players use the communication tools available to beat the game and their performance while using the different tools. To assist the participants in the user study, a user's manual will be developed so that the users can quickly learn to play the game.

Due to the size and difficulty of some of the tasks, such as the testing and validation, they will be done in collaboration with Colleen. However, several possible improvements and changes to the system would be divided between the two of us and done individually.

## Gantt Chart

ID	Task Name	Start	Finish	Duration	Jan 2006			Feb 2006				Mar 2006						
					1/15	1/22	1/29	2/5	2/12	2/19	2/26	3/5	3/12	3/19	3/26	4/2		
1	Project & Team Familiarization	15/01/2006	21/01/2006	7d														
2	Understand End-User Requirements	18/01/2006	22/01/2006	5d														
3	Characterize Wi-Fi Coverage & Accuracy	23/01/2006	04/02/2006	13d														
4	Field Testing	23/01/2006	04/02/2006	13d														
5	Understand Software Implementation	23/01/2006	04/02/2006	13d														
6	Implement Replay Tool (Message Logging)	29/01/2006	18/02/2006	21d														
7	Brainstorm/Evaluate Software Improvements	05/02/2006	11/02/2006	7d														
8	Determine Features to Add	12/02/2006	18/02/2006	7d														
9	Implement Additional Features	18/02/2006	01/04/2006	43d														
10	Develop User's Manual	16/01/2006	28/01/2006	13d														
11	EECE 496 Progress Report	17/02/2006	23/02/2006	7d														
12	EECE 496 Final Report	26/03/2006	07/04/2006	13d														
13	Develop Web Log to Track Work Progress	16/01/2006	07/04/2006	82d														