CSEE4840 Project Proposal
Vincent Liao, Arun Venkatesan, David Yang, Jaiseung Bang

Introduction:
The goal of this project is to implement Human Tetris--a game in which the player needs to navigate through virtual obstacles. The project will utilize the Altera DE2 development board, digital camera module TRDB DC2 (1.3MP), and a VGA display.

Final Deliverable:

The project will include the following three main features:

Player silhouette tracking (using camera module and DE2)
Collision detection of the silhouette and virtual objects (in DE2)
Score keeping of the current score and highest score (on the 7-seg displays)

Player silhouette tracking can be accomplished in a few ways. One way is to have the camera take an image of the background (without the player) before game play. Then, the player's silhouette would be determined by the difference between the current and initial images. This is the method we will pursue. Another way to implement player tracking is by requiring players to wear clothing of a certain color and/or making the background regularly colored.

Collision detection will require software to determine the xy-position of points inside the player's silhouette and whether or not any are within the bounds of a virtual obstacle at a given time.

Score keeping will require simple software to increment and store counts of the number of obstacles passed in each trial.

Milestone 1 (March 29): Implement the silhouette tracking. The camera will be used to keep track of a player's movement and display his/her silhouette.

Milestone 2 (April 12): Implement the game logic and levels. We will program in C to randomly generate obstacles (with some restrictions as to not make the obstacles impossible) and have the obstacles slowly move.

Milestone 3 (April 28): Implement collision detection and game display. We will tie the game design and the silhouette together and make sure that everything works correctly together.