Abstract

We set out to explore iPhone’s abilities as an engaging multi-user game environment. Apple’s iPhone shows great potential for diverse new mobile applications with its powerful hardware and its multiple forms of user input (accelerometer data and multi-touch gestures). We took advantage of these unique capabilities to create two multi-player games for the iPhone: Wap It and Turret Wars.

Technologies

1. Networking over local “Wi-Fi”
   Using a UDP protocol, the application looks for other devices running the same application and communicates back and forth with them.

2. Touch screen gesture recognition
   Based on the position, velocity, acceleration, and duration of touches, we were able to recognize taps, swipes, and pinch gestures.

3. Use of accelerometer
   The built-in accelerometer is able to detect force in three dimensions and is updated 40 times per second. Using algorithms to analyze peaks in acceleration, we are able to detect orientation and movement on an iPhone and use that data in our applications.

Turret Wars

Turret Wars is a multiplayer game based on the classic DOS game, Dome Wars. Terrain is randomly generated and players have turrets that are randomly placed upon the terrain. The turrets can be aimed and fired using finger gestures. Players take turns firing shots that can damage the other turrets as well as the terrain. The last player standing wins.

Future Work

- Enhance educational software – Incorporate multi-touch and accelerometer inputs into existing mobile educational software.
- Language learning software – Learn language on the go, using animation to convey meanings and make tasks more interesting.
- Collaborative design software – Enable design teams to communicate ideas and concepts graphically and interactively.

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This research was performed at Iowa State University as part of a research internship sponsored by NSF (IIS-0552522), the Human Computer Interaction Graduate Program, and the Program for Women in Science and Engineering during Summer 2008.