Gridlock Buster

Gridlock Buster is a traffic control game that incorporates tools and ideas that traffic control engineers use every day. Players must pass a series of levels while acquiring specific skills for controlling the traffic and ensuring that delays don’t get out of hand. For example, a player might need to manage a high volume of traffic passing through an intersection, where long lines form if vehicles don’t get enough green-light time.

Gridlock Buster is a component of the ITS Institute’s outreach efforts to pre-college students.

Play Gridlock Buster online at www.its.umn.edu/trafficcontrolgame

The ITS Institute and the University of Minnesota’s Web Courseworks developed Gridlock Buster to help students learn about traffic control techniques while having fun. The game was developed using Adobe Flash for online play, and features a narrative that guides players through several levels of increasing difficulty.

Two different control types, mouse click and fixed time, are currently available. The mouse click option allows users to play the traffic control game by clicking on the intersections to change the traffic signal to allow traffic movement in the other direction. The fixed time option allows users to simulate the traffic network by clicking on the intersections to specify the signal offset of an intersection and green splits in each approach. Performance is assessed using a simple performance index based on the delay and number of vehicle stops in the network. Players score points based on the number of vehicles that pass through the traffic network.

Gridlock Buster is one component of the ITS Institute’s continuing effort to reach out to pre-college students and introduce them to transportation-related career options. Working with curriculum development specialists, the Institute has also created a traffic engineering curriculum for high school students, incorporating interactive simulation into the learning process. The curriculum presently includes six lessons, including introduction to signal timing, queuing, intersection signal analysis, signal control parameters, and traffic counting.

Numerous traffic engineering terms and concepts are introduced throughout the lessons. The primary goal is to increase student awareness of traffic engineering as a possible career path, while at the same time enhancing student ability to apply the scientific method to a traffic engineering scenario. This emphasis also exposes students to concepts and problem-solving ideas that comprise several of the benchmarks in science for grades 9 to 12 as stated in the National Science Standards, and in particular the Minnesota Academic Standards. An addendum contains suggestions for three independent study projects featuring problems from the several disciplines.

The curriculum uses an interactive simulation module, MyTrafficKontrol, which was also developed by the ITS Institute and allows students to perform controlled experiments and analyze results, for example by graphing vehicle delay and queue length for system performance analysis. Gridlock Buster is an enjoyable introduction to key traffic engineering concepts.

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