COMP261 Lab Assignment
Due: Feb. 26, 2002

Each of the following tasks is assigned to the team noted in brackets. Each team will prepare a 1-page written report, and also make a short presentation in class/lab.

Ranging [Sharif/Jeff]

1. Get the ranging board to communicate with host PC
2. Get the configuration/control software working
3. Evaluate the 3 different transducers
4. Optimize board parameters (L, C) for each transducer
5. Propose and prototype at least one audio signal for continuous real-time distance indication
6. Propose and prototype an emergency tone for collision warning

Compass [Adrian/Miguel/Marcel]

1. Get the compass board to communicate with host PC
2. Get the configuration/control software working
3. Write code to calibrate (set/reset) the device from the host PC
4. Write code to average the raw device data. Experiment with variable window-sizes and weighting, to evaluate best real-time feedback
5. Propose and prototype at least one audio signal for continuous real-time direction signaling (absolute direction)

GPS [Kent/Justin]

1. Acquire GPS unit
2. Get the unit to communicate with host PC (laptop)
3. Do a literature search to find out over what maximum time/space separation do GPS signals remain coherent
4. Use information from (3) above to recommend whether or not, and how much, differential GPS information can be acquired by using a single GPS receiver

Voice Synthesis [Kent/Justin]

1. Explore possibilities for a voice synthesis board
2. Acquire unit
3. Get the unit to communicate with host PC