

Drunk Ride

Autonomous Automobile

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Special Sensors

For this project, I used an IMDL favorite MTJPRO11A board (\$85). It is well documented at www.mekatronix.com.

For my special sensor, I used sonar. I obtained the sonar transducers from a previous IMDLer. Unfortunately, I do not know where he got them.

For the sonar receiver, I got the MAX266 filter for free from www.maxim-ic.com and the LM339 comparator for \$1.95 at Radio Shack. All of the other components involved in the sonar receiver were easily found around the lab or at a local electronics shop. The sonar receiver on a PCB cost about \$10 total.

For the sonar transmitter, I got the audio transformer for \$2.95 from Radio Shack, the LM555 timer for \$.65 from Radio Shack and the 16MHz oscillator for \$4.00 from Electronics Plus. I had tried several designs to generate the 40kHz signal. Unfortunately, I was not able to get it working, and had to use a sonar transmitter from a previous IMDL project.

The main source for the sonar circuits were past IMDL projects, particularly Megan Grimm's and Michael Apodaca's. The major problem I had was to try and reproduce somebody else's circuit design. If you don't understand what they are trying to do, it's rather difficult to debug.

This design has the benefit of being used in several IMDL projects which allow for a lot of documentation. However, a disadvantage is that each project implemented the sonar circuits in a

slightly different manner. I would suggest buying a pre-made sonar emitter/detector circuit from Polaroid. There are many projects on the web that use it and it is well documented.