Minutes of RSSC meeting June 9, 2007

Classroom

Martin Mason , an instructor at San Antonio college gave an interactive demonstration of using thePickAxe microcontroller. He brought in a number of kits that he uses in his class for our use. We split up into a half dozen groups assembling circuitry onto a prototyping board and loading software into a microcontroller chip to run some demonstrations. The PickAxe seemed like a very easy system to use and several people mentioned how much they enjoyed such a hands-on class.

Business meeting

Our President, Bruce Weimer, notified us that our club treasurer is not longer available. Bruce will be taking over the duties of treasurer until our next election of officers.

We revisted the subject of the club mail-list. We had previously discussed setting up a new mail list for the RSSC rather than continuing to share the SDRS list. Brian Loject offered to set up a web based forum for the club. He showed a demonstration of what it might look like. The club thought that this was an excellent idea and several members were assigned to work with Brian to help set it up.

The class for next month will be Simultaneous Localization and Mapping (SLAM) presented by Steven Gentner and Bruce Weimer.

Upcoming contests will include:

August: Sumo contest for slightly larger robots
October: Hallway navigation contest
December: the annual talent contest

Contest

A contest was held which had the objective of the robot finding an electrical outlet on the wall in the front of the room as accurately as possible, and with the optional objective of actually plugging in a real plug.

There were 4 entrants, however only three ran since Martin accidently smoked his processor just before the contest. Oh well, these things happen ;-)

Jim Ubersetzig and his robot "T"

Successful run

Steve Vorres with "Ernie"

Ultimate success…plugged in!

Alex Brown with "Rocky"

Another accurate location

Results were assigned by audience voting:

1st place:	Steve and Ernie
2nd place:	Jim and T
3rd place:	Alex and Rocky

Each contestant then gave a presentation on how they had approached the contest. Some interesting aspects follow:

Jim built his own sensing device to find the outlet. It consisted of a laser and 3 light sensors mounted in an empty 35mm film canister which was mounted on two RC servos so that it could rotate 360 degrees. The rules allowed a beacon at the outlet, and Jim put together a passive reflective beacon using corner reflector type auto reflectors from Pep Boys and a piece of black velvet in between reflectors. His robot would scan the room until it found the outlet, then approach the outlet making occasional steering corrections and usually lowered a pointer right onto the outlet. As usual, he did all this with a Basic Stamp with 26 bytes of RAM.

Steve used a camera from a broken camcorder which has autofocus and produces very high quality images. He combined this with the image recognition and navigation software from the Evolution Robotics ER-1 robot to make a very accurate approach to the outlet. So accurate that a carefully positioned plug would slide right in.

Alex relocated Rocky's webcam from the top of the robot to just above wall socket level. He used Compass , sonar and deadreckoning to search along the wall. Steven Gentner's RoboRealm (Roborealm.com) software was used to detect the outlet and to provide navigation data to approach it.

Show and Tell

Walter Martinez showed us his upcoming robot as a demonstration of how PVC pipe can be used to easily put together a durable framework. The use of bright red and black paint on the PVC gave a good appearance. He has a touch screen mounted on top (in day-glow orange!)

John Walters showed off his robot which (I believe) was just completed in the last month. It is unique in that the controller board is completely constructed using wire-wrap. The controller is an 8051 (or a varient) and is programmed in C. It has very nice aluminum wheels which he machined at home. He gave a demonstration of it running around on the floor in a programmed pattern.

Derek Jones showed a very small camera (C328). It runs on 3.3 volts and produces a 60x80 pixel picture. He also told us about "surfboards" which are adapter boards for attaching surface mount components to prototyping boards. Each surfboard is a small PC board to which the surface mount part can be soldered, then this adapter board can be easily attached to a proto board.

Jeff Dunker played a video demonstrating a microphone device (RSC148) which has two microphones and can detect the direction from which a sound is coming. The video showed the device attached to a servo turning back and forth as two people talked to it. Unfortunately, it is about $350…..but hey, we ought to be able to build one!

Thomas Messerschmit and Tim Sullivan brought in their B9 robot to show their progress.

They showed how they have added lights and a rotating device to the bubble head. They are controlling it using the Leaf software (leafproject.org) and are using X10 devices to control much of the robot components.

They mentioned difficulties in getting a clean AC signal from commonly available DC-AC converters. Brian Loject suggested using an uninterruptible power supply for computers.

They have created an extensive set of wav files which allows the Leaf software to talk with a B9 accent (more than an accent, the files are taken from actual B9 speech).