Jan 20

No Information for this general club meeting. Use your browser's back
button to return to the "minutes" file folder. Sorry for the inconvenience.

SDK

Feb 17

No Information for this general club meeting. Use your browser's back
button to return to the "minutes" file folder. Sorry for the inconvenience.

SDK

Mar 17

No Information for this general club meeting. Use your browser's back
button to return to the "minutes" file folder. Sorry for the inconvenience.

SDK

April 21

No Information for this general club meeting. Use your browser's back
button to return to the "minutes" file folder. Sorry for the inconvenience.

SDK

May 19

No Information for this general club meeting. Use your browser's back
button to return to the "minutes" file folder. Sorry for the inconvenience.

SDK

June 16

Meeting Minutes for Seattle Robotics Society Sat, June 16, 2001 from 10-12PM

The meeting started around 10:15 with a welcome and introduction by SRS
president Ron Nucci. Attendance was about 60. No appreciable increase
occurred during the course of the meeting. The summer turnout tends to
be lighter than the rest of the year, but this is normal.

Doug Kelley brought up the issue of elections and new officers since he would like to hand off his 'event coordinator' responsibilities to some else. He says the paperwork to arrange for the Seattle Center Centerhouse for the next Robothon must be submitted before September, and that he'll take care of it. He talked a bit about what's involved and said he has things pretty well defined and documented. Pete Miles arrived just in time to express interest and nomination for the position. Steve Kaehler has talked with Tom Dickens and expressed interest in the club secretary position. Ron Nucci is looking to hand off the presidency to some else too.

It was suggested that elections be postponed until the September meeting, with only informal transition and information exchanges occurring during the summer. This seemed reasonable to everyone since meeting attendance should pick up and better representation of the club membership should be present for the elections.

Karl L.: Brought in a cool little handheld PC he got from a mail order outfit. He passed around a $10 motion sensor he got from Ramsey Electronics (http://www.ramseyelectronics.com/). He was impressed with its simplicity of use and sensitivity. He also brought a bunch of T5000 gear to sell off as well as some other miscellaneous cool stuff to unload. His website (http://www.seanet.com/~karllunt) has hacking instructions for the T5000. He also brought in an Epson color printer that had some problems but might be fixable by someone else.

Doug K.: Robothon Lost & Found – If you lost anything at Robothon, contact Doug Kelley (doug.kelley@alaskaair.com) with a description and he'll check for it amongst the items found.

Doug L.: Is the SRS going to be involved with Rusticon? This is a Sci-Fi convention that will happen at the Puyallup Fair grounds. Don't have any other info on this. Didn't seem to be any interest expressed by those present.

Steve K.: Design News magazine (http://www.designnews.com) April 23, 2001 has an article on the technology behind combat robots. It highlights some new robots coming this fall. Science News (Feb 10, 2001, Vol.59, No.6) (http://www.sciencenews.org), a weekly magazine, has an article on hopping robots as an alternative to wheels, treads, or legs. JPL is working with NASA and CalTech on robots that could get over or around obstacles too big for other types of locomotion by jumping over them. It was mentioned that a recent Circuit Cellar INK (http://www.circuitcellar.com) article (online?) also covered this type of robot.

Mark: Brought a 286/386 computer looking for a good home.

Jeff A.: Brought a barcode scanner to give away.

Terry L.: Brought a collection of catalogs and flyers for whoever wants them.

Ron N.: The video footage shot from the stage during Robothon 2001 could be made available for sale if there is enough interest. The videographer put together a nice tape. If you are interested, contact Doug Kelley. He thinks they should be available for no more than $12 each. Don't know what the minimum quantity is to get them made.

Brad Larsen: The theme of the day seemed to be blimps. Brad's home-built stunt blimps caused quite a stir. He flew one RC blimp around the room before and after the meeting. Its ability to maneuver even in the confined space of the meeting room was very impressive. His larger blimp (at home) can even carry a small payload like a wireless video camera. He explained how he used RC servos with all the gearing removed and the motors connected directly to the propellers to achieve speed and direction control. His blimps have their CG in the center of the bladder rather than under it like conventional designs. This gives his blimps "360 degree pitch control" which enables high maneuverability (stunts) and controllability even at low speeds.

He designs things that fill needs that he either sees or is hired to fill. He is always looking for jobs involving invention, innovation, artistic expression, or whatever. Contact him if you think he can help you with something (206)284-7982 or blarsen@seanet.com.

Mike Miller: Showed a combat robot, "Rabid Labrat", that he's working on. He's interested in collaborating with other enthusiasts. See what he's doing at http://www.rabidlabs.com.

Doug K.: GEAR - Great Escape And Retreat is being planned (tenatively) for this fall, probably at Whidbey Island State Park. This event combines robotics and communing with nature into a weekend campout. Bring robots to show, work on, or just talk about. There is a survey on Yahoo Groups to see what weekend works the best. Check it out at http://groups.yahoo.com/group/SeattleRobotics/polls or contact Doug Kelley directly (doug.kelley@alaskaair.com).

Ron N./Ron P.: The 17th International Joint Conference on Artificial Intelligence (IJCAI) is happening at the Washington State Convention Center from August 5-11 (Sun-Sat). It is being co-sponsored by the AAAI (http://www.aaai.org). For information, check http://www.ijcai.org. There will be a number of robot contests including Robocup & Robocup Jr., some using LEGO Mindstorms robots. Ron N. continues to work on a robot for one of the contests.

Doug B.: Brought in a clone of his eight-legged LEGO ZNAP walker built by Gus Jansson's son at Robothon using some of his extra parts. He explained the basic walking mechanism and talked about some of the hurdles he's overcome. The walker uses two motors, one on each side, each running four legs. The two motors can operate independently and yet still permit full forward, reverse, spin, and pivot motion of the robot. He bought out most of the local stock of ZNAP kits from Toys R'Us last winter when they were being blown out and is now trying to make some use of all the parts.

Ryan W.: "M2" simulation software.

Ron P.: Talked a little about Steven Spielberg's new movie, "A.I.".
Previews are being shown in theaters, however the movie isn't playing
yet. Check out the website at http://www.AImovie.com.

Ron N.: A new RAD robot, 'RAD3', should be coming out soon with voice
synthesis and recognition built-in. It also walks rather than using
treads. Tektronix now has a voice-controlled o-scopes. This allows
verbal interaction with Tek o-scopes. Check it out at
http://www.tek.com, search their website for "VocalLink".

Mark C.: Brought some older but quite useable 68332 boards to sell. He
has also checked a new 68332 C compiler by David Fiddes
(http://www.fiddes.net/coldfire) that seems to work with the MRM. Let
him know if run into any snags related to his board.
mailto:mcastelluccio@seanet.com. For technical information on the MRM board,
see his website at http://www.robominds.com/robomind.htm

Steve K.: LEGO RCX Challenge should happen sometime later this year at
the Pacific Science Center. Ray C. Freeman III pulls this contest
together a couple times a year to pit LEGO Mindstorms robots (and
builders) against each other in line following, sumo, puck gathering,
and floor exercises. Keep an eye on his website at
http://www.workshop3d.com/rcx/ for details.

Steve continues to offer his services as editor and assistant to anyone
wishing to pull together an article for the Encoder. This is a premier
publication with a far-reaching audience and provides and excellent way
to capture technology and techniques in robot building for the benefit
of robot hobbyists everywhere. Contact him (sdk6772@yahoo.com) if you
have something you'd like to try to turn into an article.

The show-n-tell part of the meeting finished around 11:15. Short but
sweet. Lots of good social interaction and information sharing.
Someone suggested Pegasus Pizza at 4201 NE Sunset Blvd. for lunch
(since Godfather's is closed) but it doesn't open until noon so takers
hung out until then.

Directions from RTC: Head north (left) on Monroe Ave NE (east side of
RTC). Follow this about a mile to 12th St. Turn left and go down the
hill to the traffic light. Turn right onto Sunset Blvd. and follow it
about 0.8 miles. Pegasus is on the right (south side of the street).

Compiled & submitted by Steve Kaehler (sdk6772@yahoo.com) for Tom
Dickens.

July 21

Compiled by Steve Kaehler for Tom Dickens, pictures taken by Dairyo Gokan

The meeting started at 10:00 with a welcome and introduction by SRS president Ron Nucci.
Attendance started at about 40 and reached 75 by 11:00. The first order of business was to elect

by verbal vote a new president, namely Doug Kelley. Newly elected President Doug Kelley took charge of the meeting.

Randy S. - Showed BotBall video, talked about RoboCup contest at Seattle Convention Center. The 17th International Joint Conference on Artificial Intelligence (IJCAI) is happening at the Washington State Convention Center from August 5-11 (Sun-Sat). It is being co-sponsored by the AAAI (http://www.aaai.org). For information, check http://www.ijcai.org. He would like to see a NW regional team. Contact him rsargent@kipr.org if you are interested. He also showed several videos of BotBall competitions sposored by the KISS Institute for Practical Robotics (http://www.kipr.org/). The official website URL is http://www.botball.org. He has also been involved with F.I.R.S.T., For Inspirarion and Recognition of Science and Technology (http://www.usfirst.org/), an intense youth-oriented robotic competition.

Ron N. - Volunteer opportunities appear to be available at the IJCAI, especially on the weekdays. Partakers will get a daily pass free ($10/day savings) for the days they work. Email him at r.nucci@worldnet.att.net if you are interested. He will be in contact with someone from the IJCAI this week and know more then.

Kevin R. - Passed around his new board that he's been writing about in the SRS Encoder. See the series started in January.

Ann W. - Showed what she has been working on at NASA/AMES Research Center in . Her project is part of a new generation of terrestrial explorer called the "K9 Rover". This vehicle is capable of a remarkable range of movement. It can move around any point in its X-Y plane by rotating and driving any or all of its six wheels. Randy Sargent wrote the software that calculates what to do with the wheels in order to follow any desired path. More information is available on the web at http://ic-www.arc.nasa.gov/intelligent-robotics/k9/index.html.

Dr. Dieter Fox, a professor of robotics at the University of Washington, arrived shortly before 11:00 and started his presentation at 11:00. He showed some examples of robot projects he's worked on. He showed us several videos taken from a robot-mounted camera when he first introduced them to the U of W. He uses robots with onboard and offboard controllers permitting virtually unlimited computational capability.

He explained (at a very high level) how he uses "particle filtering" to determine where a robot is. The robot might be given a map or it might explore an area on its own, generating one as wanders. In either case the robot is told all possible locations within it's world as data values in a matrix. Each point represents a 10-15cm square region within the robot's world. Each location starts with an equal probability of being the robot's true location. As sensor range data is acquired, the robot compares the data it collects with its map and adjusts the probabilities of all the locations in matrix appropriately until the locations with the highest probability of being the robot's true location are increased while the other location probabilities are decreased to nothing. When viewed on a cartesian plot of the robot's world, the probabilities initially appear as spots that more or less cover possible locations but then gradually disappear and collect as clusters of dots near those locations with the highest probabilities until a single location is left. He demonstrated the techniques using both sonar range finders and laser range finders. The

laser range finder was able to eliminate improbable locations much more quickly than the sonar and did so with fewer data points. The presentation was well received and generated a lot of good discussion. More information and the tutorial slides presented may be found at Dr. Fox's website at http://www.cs.washington.edu/homes/fox/. Thank you for coming, Dr. Fox.

He also showed a funny video call "Graffitiwriter" from http://www.appliedautonomy.com which everyone enjoyed.

Ted G. - Showed his coolest robot yet, M&MBot, an M&M gathering/shooting robot. It has a color sensor, pager motors for drive, and he made his own circuit board, plus some cool blue LEDs. It isn't programmed but the motors run so it shouldn't be too long before he gets there. It is also quite small, being 2" long, 1 1/4" wide, and 1 1/2" tall.

Kenneth M. - Brought in some cool treads he's been working on. They are mounted on a beautiful piece of machine work. He has a stepper motor between the wheels for drive. Another picture. He also brought a neat laser range finder and demonstrated it for us.

Thruman G. - Showed a MRM board reading and displaying attitude data from an Analog Devices ADXL202E two-axis accelerometer. He used an evaluation board available from AD to minimize his work and maximize the probability of success. He wants to improve the reading stability. Click here to link to info about the evaluation board on the AD website.

Carson - showed a LEGO Mindstorms(R)-based robot he and his friends have built for RoboCup Jr. They call themselves Team Fungus. It will compete in the Search & Rescue and Dance contests. The robot will have two line sensors to allow in to track a path to a place where it must push some small plastic men out of a building. This mode is still in development. They demonstrated the Dance mode for us.

Ron N. - Concluded the organized part of the meeting by showing us his RAD-based robot with speech recognition. He does not have a name for it except a conglomeration of parts.

Steve continues to offer his services as editor and assistant to anyone wishing to pull together an article for the SRS Encoder. This is a premier publication with a far-reaching audience and provides and excellent way to capture technology and techniques in robot building for the benefit of
robot hobbyists everywhere. Contact him (sdk6772@yahoo.com) if you have something you'd like to try to turn into an article.

Lots of lively small group discussions followed the meeting and folks were still milling around over an hour later. Lunch at Pegasus Pizza at 4201 NE Sunset Blvd for anyone who's interested.

Directions to Pegasus Pizza from RTC: Head north (left) on Monroe Ave NE (east side of RTC). Follow this about a mile to 12th St. Turn left and go down the hill to the traffic light. Turn right onto Sunset Blvd. and follow it about 0.8 miles. Pegasus is on the right (south side of the street).

Aug 18

The meeting started at promptly at 10:00 with a welcome and introduction by SRS president Doug Kelley (doug.kelley@alaskaair.com). Attendance started at about 53 and reached 72 by 10:30. Doug explained the meeting format: Intro and welcome, club business, show-n-tell, a presentation, informal one-on-one chats afterward, and lunch at a local restaurant. Nine new folks were present. Welcome!

Pete Miles, newly elected as event coordinator, Pete talked about upcoming contests and preparations being made for them. The Seattle Center Centerhouse has been reserved for Robothon 2002 on Saturday May 4. The upstairs conference room will be available once again for the Friday evening "hack" session and then all day Saturday for whatever the club chooses to do with it. Robothon 2002 will host the first regional BotBall (http://www.botball.org/) competition for the PNW. Randy Sargent of the KISS Institute for Practical Robotics (http://www.kipr.org/) can be contacted for information about BotBall at rsargent@kipr.org

The contest events will include Japanese sumo classes, line maze (12'x12', no loops), BotBall, and floor exercises but no grand maze. Micromouse was suggested but may run as a floor exercise unless enough folks build robots for have a contest. Pete is in the process of revamping the Robothon webpage (http://www.seattlerobotics.org/robothon/) so be sure to keep an eye on it over the next few months. He is also looking for all kinds on help on the planning committee to handle the many behind-the-scenes details that go into making the Robothons such great events. If you would like to help, contact him at petem@ormondllc.com.

Other events coming up:
* Sep 29 - Northwest Robot Sumo Contest (http://www.seattlerobotics.org/nwrs/index.html), sponsored by Bill Harrison of Sine Robotics.
* Oct 20 - Line Maze practice at regular meeting at RTC
* Jan 13 - Rustycon, robot sumo demo by Bill Harrison
* Feb 16 - New contest, details forthcoming
* Mar 16 - Annual Robot Fire-Fighting contest, at RTC

Doug Kelley - Unfortunately, the club meeting next month will be held in the Culinary Room as it was earlier this year. This room is a bit cramped for a group our size, but the regular conference room will be needed and is normally provided to us by the college at no charge. This meeting location will be somewhat cramped so don't bring too much stuff to show. Also, arrive early if you want a seat. There will be another presentation, this time by Dr. Kirsten Jaax who will tell us about "muscle spindle actuators". Next month will be elections for the positions of secretary and vice president. After the SRS meeting, the LEGO Mindstorms SIG (S.M.A.R.T., http://news.lugnet.com/org/us/smart/) led by Gus Jansson will have their meeting in the Culinary room starting at 1:00 PM. Contact him at GJansson@aol.com if you have questions.

For those interested in LEGO Mindstorms robots, the Third RCX Challenge is coming up in October at the Pacific Science Center. See http://www.workshop3d.com/rcx/index.htm for more information. The contests start at 1:00PM and are held next to the new Boeing 3-D IMAX theater (http://www.workshop3d.com/rcx/schedule.htm)

Ted Griebling.showed the latest developments on his cool little robot, m+m'Bot, an M&M gathering/sorting/shooting robot. (The picture is from July's meeting and there have been some changes). It has a color sensor, pager motors for drive, and he made his own circuit board, plus some cool blue LEDs. It can move a little and actually collect and shoot and M&Ms now. It is extremely small, being a mere 2" long, 1-1/4" wide, and 1-1/2" tall. He said he wanted to build a robot that would do something interesting and impressive even to a non-technical person. The result has been eight months of effort to fabricate m+m'Bot from the ground up.

Here are his comments:

"The idea is to make a bunch of robots to give to friends and family. This is to be something anyone can appreciate and enjoy. Not just robot-geeks like us. The m+m'Bot is a holistically designed robot and a long on-going design design project. The time spent so far on each part has been:

Mechanics ~4 months, Electronics ~4 months , Software (just started).

The result is turning out to be one of the cutest robots ever.

Hardware:

- 2 mini bipolar stepper motors, 20steps, rev. (From auto-focus mechanism?) They work on ~ 2V fine but draw ~200mA each (PWMing motors to reduce power draw).
- Custom machined 19.1 : 1 gear boxes.
- Pager motor powered m+m corral, captures and ejects M&Ms -- easily shoots across a table.

Electrical:

- 3.3v logic ATMEL AVR AT90LS8535 (http://www.atmel.com/atmel/products/prod200.htm)
- 600mA NiMH x 2 Varta batteries from Energy Sales (http://www.energy-sales.com/). (Bot is designed for single battery operation but uses two)
- PCB custom AP Circuits (http://www.apcircuits.com/)-- entirely surface mount.
- Step-up switching regulator, from single battery 1.2V to 3.3V (or 5V). Problems with this.
- Push-button power-on.
- 5 H-bridges made of discrete MOSFETs.

Sensors:

- Battery voltage detector.
- 4 PIR sensors each with a separate A/D input
- Color sensor 3 x 3 color illuminator and Photo diode input to A/D
- Provisions for Bump sensors (only 5 I/O lines left over!)

Software:

- Programmed in C with the "Atmel for Dummies" distribution of GCCAVR, (http://8bit.at/avr/)
- Program downloaded using PonyProg, (http://www.lancos.com/prog.html)"

Karl Lunt has been contacted by Mike Green of Robot Science & Technology (http://www.robotmag.com/) to write a chapter about robot software for a forthcoming book about building robots. The book's purpose seems to be to show how to build an autonomous "warrior" type robot, with all aspects detailed in various chapters. Mike may be looking for others to write chapters on other subjects if anyone is interested. The book is due out before this Christmas.

Carson Kabel showed the LEGO Mindstorms-based robot he and his friends built for RoboCup Jr. at the IJCAI last week They came in second place in the search and rescue and dance competitions. Here's the link to an article on 8/16/2001 in the Olympian about these kids (http://news.theolympian.com/stories/20010816/SouthSound/90092.shtml

Ron Nucci.brought in a couple copies of "WINBatch" software. This program allows the user to emulate keyboard commands to most Windows programs thus allowing multiple off-the-shelf program to be used in concert to accomplish tasks beyond the capability of any one program. For example, in a robotic application, if one had a video acquisition program and wanted to get the camera image to some video processing program that couldn't get it directly, this software would provide the bridge for accomplishing this. More information can be found at http://www.windowware.com/winware/winbatch.html

Ron also mentioned a new product by Acroname called "Brainstem". Check it out at http://www.acroname.com/brainstem/brainstem.html

Brian Thomas Robotics, operator of Servocity (http://www.servocity.com/), has lots of cool servos and add-ons like pan/tilt platforms. There will be a new website online soon at http://www.brianthomasrobotics.com/.

John offered some keyboard and other miscellaneous computer cables for grabs.

Gordon Anderson, from Richland, WA, was in Seattle on a business trip and came by to show us an interesting project he's been working on. In hostage situations, communication with the terrorists is vitally important to resolve the situation. This has typically been accomplished by having people (S.W.A.T. team members) deliver a wired or cell phone to a location close to the terrorists. The problem is that this endangers the deliverers. To address this problem, Gordon helped design a vehicle based on a couple small bicycle frames welded together into a three-wheeled configuration with automotive windshield motors connected to the pedal crankshafts for drive and steering power. The rear wheels are retained while the frames are merged to a single, steerable front wheel. The ten-inch tires permit the vehicle to climb over curbs, rocks, branches, and other debris without trouble, delivering a cell phone for negotiator's to communicate. When

equipped with video, audio, and other sensors, it may be used to enter and check an empty meth lab or crack house before sending people in. A potential concern mentioned was sparking caused by the drive motors which could ignite a flammable atmosphere in the building, but at least people wouldn't be injured or killed.

Tim Hitchcock is looking for an electrical/electronic engineer to help develop an electronic power management system for a hybrid electric vehicle. The project involves taking driver and sensor inputs, making decisions about drive modes, and sending commands to the electric motors and gasoline engine in real time. The vehicle will compete in the Tour de Sol road rally in May 2002. The position is unpaid and voluntary in collaboration with the Viking 23 student team from the Vehicle Research Institute at Western Washington University in Bellingham, Washington. The hours and commute are flexible with an estimated participation of 10-15 hours per month from September 2001 through May 2002. If you are interested, contact Tim at timothy_hitchcock@yahoo.com or PO Box 11727, Olympia, WA 98508-1727 or (360)-352-1065. More information can be found at the following links:

Vehicle Research Institute - http://vri.etec.wwu.edu/
Viking 23 hybrid car specs - http://vri.etec.wwu.edu/viking_23.htm
Tour de Sol Homepage - http://www.nesea.org/transportation/index.html

Doug Bell showed us a cool little dual-motor RC car called a "Racing Rat" that looks like a great platform for a small robot. It has two independently controllable drive motors that make the car move when driving together and steer when driven separately. He found it at KBToys (http://www.kbkids.com/index.html). Search the website with "racing rat" to find it. It comes with rechargeable batteries and a 10-minute charger.

Doug also showed us a couple Metricom Ricochet modems (900 MHz spread spectrum type) he bought recently for $150. They were originally intended to communicate with a utility pole mounted receiver for direct Internet connection. He has a pair which if connected to two PC, should allow them to talk to each other wirelessly. Unfortunately, a second laptop wasn't available at the meeting to verify this. Also, Metricom has declared bankruptcy and is now out of business. See http://www.metricom.com/ for details.

A sales presentation by Mikel Carver on Atmel microcontrollers was done from 11:00 to 11:45. More details can be found on the Atmel website at http://www.atmel.com/. All American (http://www.allamerican.com/) supplies the chips locally and can be contacted for samples and datasheets. Contact Yoshi Nimi at AA for information.

The SDK500 was recommended as the System Development Kit of choice for evaluating AVR's in your applications. CD's of the Atmel website were available and a drawing for various giveaways was held with the stipulation that the recipients had to do something with the kits and bring them back in month or two to show. Details about the chips discussed can be found at http://www.atmel.com/atmel/products/prod23.htm. Development software can be downloaded

from Atmel's website at http://www.atmel.com/atmel/products/prod203.htm. Feedback forms for the presentation were collected and will be evaluated to improve future presentation.

Several people who have worked with AVR's were asked to share their experience and impressions.

- Ted Griebling likes them and used the AT90LS8535 on his m+m'Bot mentioned above. Many of the chips are available in DIP form making breadboarding easy and fast. See the Atmel website (http://www.atmel.com/) for details.

- Pete Burrows shared a board that he designed that he programmed with a form of BASIC one can download off the web for free and an inexpensive AVR chip programmed via a PC's parallel printer port using a cable built from $5 worth of Radio Shack parts. Check it out at http://www.dontronics.com/runavr.html for details. He also like the AVR processors.

For general information, Larry Barello has a great website about his uses of the AVR processors. Check it out at http://www.barello.net/.

Gene Elliot will be attending PRIME, a show where people display internal combustion engines of all shapes and sizes. It happens in Oregon on September 28th. He wants to start a robot exhibit at the show and would like to take some machines along to show off. Contact him at gene@harbornet.com if you want more information or have something he could take along.

Terry Laraway shot meeting pictures and brought a bunch of vendor catalogs for giveaway.

Lots of lively small group discussions followed the meeting. Group lunch at Pegasus Pizza at 4201 NE Sunset Blvd for anyone who's interested.

Directions to Pegasus Pizza from RTC: Head north (left) on Monroe Ave NE (east side of RTC). Follow this about a mile to 12th St. Turn left and go down the hill to the traffic light. Turn right onto Sunset Blvd. and follow it about 0.8 miles. Pegasus is on the right (south side of the street).
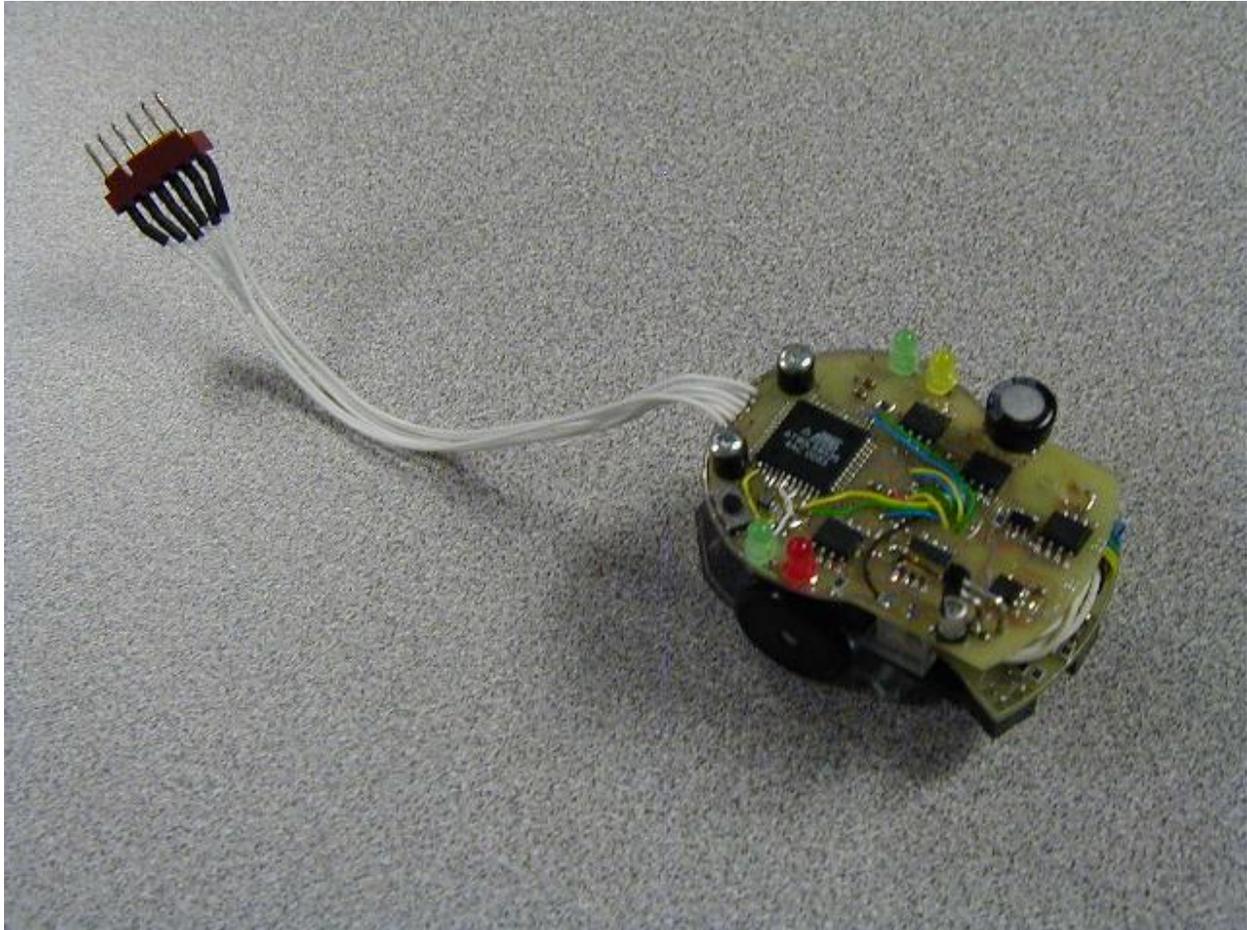
Sep 15

Both Tom Dickens and Steve Kaehler were absent today so I'm writing the minutes. Please feel free to add your own comments about the meeting since I didn't take any notes.

The meeting was moved back to room H-102 since the class that was scheduled there was canceled. It seemed like the meeting was going to have only a few members but more trickled in late and we ended up with about 80 people and there were quite a few new faces.

The first order of business was to hold our annual elections. Only the positions of secretary and vice president/treasurer were open. Steve Kaehler was voted in as secretary and Ron Provine was re-elected as vice president/treasurer.

Larry Barello and Ron Provine spoke about FIRST. There will be a Seattle regional event this year and volunteers are needed to help the students. Contact Ron or Larry for more details.

There was a short "show and tell" consisting of a few good "finds" and some old stuff people were trying to give away.

Larry Barello mentioned a high-current motor controller that some of the RobotWars people are designing. More information can be found at http://groups.yahoo.com/group/osmc.

Someone mentioned a Sumo contest in the Seattle area in the near future but I don't remember the date/location. If someone knows the details, please post them. There's nothing on Bill Harrison's Web site.

Dr. Kristen Jaax gave an interesting and informative presentation on artificial muscle spindles, McKibbon Actuators and Hard Drive Actuators. Her presentation was a nice mix of theory and hacking. She had a great handout with information and links. In summary:

Dr. Jaax's email address: jaax@u.washington.edu
UW Biorobotics: http://rcs.ee.washington.edu/brl/
For tours of their lab, contact Blake Hannaford: blake@ee.washington.edu
Muscle Spindle Publications: http://students.washington.edu/jaax
McKibbon Actuators: http://www.shadow.org.uk/products/airmuscles.shtml and http://www.imagesco.com/robotics.html
Actuator instructions by Glenn Klute: http://www-rcs.ee.washington.edu/BRL/devices/mckibben/acon.html
Hard drive actuators: http://brl.ee.washington.edu/reports/papers/Rep076.html

We broke for lunch at Pegasus (if anyone knows a better place, please let me know).

At 1:30, some members returned for the SMART group (Lego Mindstorms). They have a new RCX challenge on October 6. See http://www.workshop3d.com/rcx/ for details.

Your slacker president didn't get the next meeting fully coordinated yet. But, we ARE going to have a Line Maze competition with a full 12 x 12 maze! Bring your robots because this will be the only Line Maze practice competition before Robothon. Last year a Lego robot won this competition; we can't let that happen again, can we?! ;-)

Other meeting details will be published on the listserve when I get them worked out.

Doug Kelley
SRS President

Oct 20

The October meeting started with a few general announcements. The "SRS Announcements" Yahoo group was well receive as more than a dozen members don't subscribe to the main SRS group due to the high volume of email received. Ron Provine talked about needing volunteers to help with FIRST (http://www.usfirst.org/). Contact Ron if you are interested. Pete Miles announced the new Robothon page (http://seattlerobotics.org/robothon/index.html) and is looking for pictures from past Robothons, particularly pre-1999. This year Robothon will host the regional BotBall competition (http://www.botball.org/).

Line Maze (http://seattlerobotics.org/robothon/maze.html) was the primary theme for this week's meeting but we had two other excellent presentations as well. Larry Barello talked about the sensor arrangement he uses on Dilbert for doing the Line Maze. He provided a handout and mentioned a few lessons learned about the sensors he was using. Larry wrote an Encoder article several months ago that detailed similar information (http://www.seattlerobotics.org/encoder/200011/Line%20Following.htm). Larry also talked about the Open Source Motor Controller he's been involved with. If you are working on a big robot, be sure to check out the Yahoo group (http://groups.yahoo.com/group/osmc). They will be doing another order for the bare boards soon.

Kenneth Maxon (http://www.users.qwest.net/~kmaxon/page/) talked about the laser range finder he wrote about in this month's Encoder (http://www.seattlerobotics.org/encoder/200110/vision.htm). His system is not cheap but provides reliable information in a compact package. Very interesting!

We ran out of time to talk in detail about some of the Line Maze robots that showed up to the meeting. Of the eight or nine robots at the meeting, four or five were running (depending on your definition of running) and three were able to complete the entire 12' x 12' maze. Gus came in first place with his STOCK Mindstorms robot (31 seconds) while Larry's Dilbert came in second (41 seconds) and Jim's came in third (12 minutes). Jim's robot was not at the point where it could learn the maze but he's getting close. It looks like this will be a good competition at Robothon this year. Come on guys, we can't let a Mindstorms robot win again!

The usual B.S. and pizza was in abundance after the meeting.

Nov 17

INTRODUCTION

SRS President Doug Kelley called the meeting to order around 10 AM.

There were about 80 folks in attendance at this time. More came later. Standing room only for some.

Doug Kelley borrowed a video projector and along with a mini video camera was able to display small robots up on the projection screen for the benefit of folks toward the back of the room. (Feedback after the meeting from some of these folks was positive, though a wired version of the mini-camera will be used next time to get better video stability.)

Doug welcomed new members and students of ITT Technical Institute who had come to see what the SRS was about and view 68HC11-based robots. There were around a dozen new folks in attendance. Most had heard about the SRS from the web.

There is a special list set up to broadcast meeting and event announcements separate from the regular listserver. If you wish to reduce the email traffic to your Inbox without missing important

upcoming event notices, you can subscribe just to this list and view the other online. Just plug the following link into your browser and subscribe.

http://groups.yahoo.com/group/SRSAnnounce

All information sent to this list will also be sent to the main list:

http://groups.yahoo.com/group/SeattleRobotics

For one more week, videos of presentations given at the last several meetings will available exclusively for local member checkout. After this, they will be made available to anyone in the larger membership.

Highlights of upcoming meetings include:

December Line Maze
January Sumo

Doug is always interested in presentation ideas and suggestions. Email him at doug.kelley@alaskaair.com.

ROBOTS, ETC.

Pete Miles told us about some Lynxmotion (http://www.lynxmotion.com/) products aimed specifically at some of our Robothon contests. The CR2 Explorer and Carpet Rover 2 kits might be of particular interest to 3kg sumo roboteers. Lynxmotion has offered $100 if you win at Robothon with one of their kits.

Doug Kelley showed off his mini-line maze robot with its Gameboy camera.

Ron Provine showed some plastic robot bases like Marvin Green's B-Bot frame (http://www.rdrop.com/users/marvin/okit/otherkit.htm). He found a local company that will make the basic plastic parts in quantity for a reasonable price.

Ron also show a BIOBug (http://www.wowwee.com/biobugs/biointerface.html) that he bought recently. These toys are available at most major toy outlets around town for $40. These robots have feelers, IR sensors, and a four-legged gate that permits them to move about their environment "exploring" and "learning" as they go. The solarbotics.net website has details of the innards of these creatures at (http://www.solarbotics.net/biobugs/default.htm)

Pete Burrows showed a $200 robotic dog made by Tiger called "Icybie" who behaves an awful lot like the AIBO's but for a lot less money. It has a remote but can operate autonomously. Information on this neat toy can be found at (http://www.virtualpet.com/vp/farm/icybie/icybie.htm)

Pete also showed us his newest mini sumo robot ("Nemesis") and even a very cool micro-sumo that he is working on for one of the newest categories of robot sumo.

Ryan Wistort showed the latest incarnation of his robotic elephant. Actually, it is a five-legged spider named "Charlotte". The body is constructed out of high-density fiberboard and has three servos for each leg. It uses the Palm (http://www.palm.com/) controller from his elephant for the brains. He wants to add a camera to it soon.

Kevin Ross (http://www.kevinro.com) now has his 68HC12D60 controller boards (http://www.kevinro.com/doc/912d60/912d60.htm) available for sale. He wrote about these in the SRS Encoder starting last January (2001). He detailed the trials and tribulations of designing and building a new controller which can now be had for $75 as a kit.

Kevin also showed a LEGO robot built for BotBall (http://www.botball.org/) contest that has IR range sensors, an HC11 controller board and homemade wheel encoders. He is interested in seeing the SRS sponsor a BotBall competition, perhaps in conjunction with Robothon. Contact him (kevinro@nwlink.com) if you are interested in getting involved.

Kevin has also been involved extensively with F.I.R.S.T. (http://www.usfirst.org/) and encouraged other people to do the same. This organization strives to help kids learn about and apply technology to challenging problems. He says it's very rewarding and extremely fast-paced.

Ron Nucci says that RAD 2 robots are being closed out for cheap as the new RAD 4 robots are appearing. These robots have speaker-independent voice recognition built in and an improved drive system.

Ron also talked about a new camera/video processor board developed some folks at Carnegie-Mellon University. It is similar to the Newton Labs Cognochrome (http://www.newtonlabs.com/index.htm) only less sophisticated and a lot cheaper. It pre-processes image data and returns location info about different color objects in its field of view. Check out info on the web at http://www.seattlerobotics.com/

Larry Barello (http://www.barello.net) showed a couple of his robots to the groups and explained some of the challenges that went with them. He also had a table set up on the side with more of his machines.

Gene Elliot picked up a miniature "BattleBot" toy from Fred Meyer that he intends to turn into a mini sumo and install a miniature camera to see things from the robot's perspective. It is a wedge-shaped metal container with two rubber drive wheels. It appears to be a good platform for a mini (10x10cm 500g) sumo.

Terry Laraway brought an assortment of magazines and catalogs that are free for the taking.

Feature Presentation - HAPTICS

The rest of the structured part of the meeting (11:00 – noon) was filled with an interesting presentation by Dr. Blake Hannaford, Director for the BioRobotics Lab at the University of Washington. He has interacted with members of the SRS for about ten years and has always been impressed with what SRS folks have accomplished. He invited anyone interested in seeing his labs to contact him.

He talked about "haptic" technology which consists of high performance mechatronic (computer and mechanical) systems that allow humans to "feel" and physically manipulate computer models as if they were real. Details of the projects happening there and other aspects of his work can be found at (http://rcs.ee.washington.edu/BRL/). A video was made of his presentation and will be added to the library.

CONCLUSION

After Dr. Hannaford's presentation, the structured part of the meeting ended and folks mingled and browsed.

Lunch with other interested robotics enthusiasts was at Pegasus Pizza on Sunset Boulevard in Renton.

Dec 15

Introduction

The December meeting started with a welcome and a few general announcements from Doug Kelley. He raffled off a cool little radio-controlled tank from Plantraco Toys called a Desktop Rover (http://www.plantraco.com). This neat little machine can be video-equipped to spy or traverse into hard-to-reach places. As cool as it is, it's probably a little expensive for a toy, but then it's only money.

Show-n-Tell

Karl Lunt said that his chapter for the book the "Autonomous Combat Robots" won't be there.

Gary Teachout, Karl Lunt, and several other folks brought some stuff for give-away including some old robot books for sale.

Pete Miles reminded us about some Lynxmotion (http://www.lynxmotion.com/) products aimed specifically at some of our Robothon contests. The CR2 Explorer and Carpet Rover 2 kits might

be of particular interest to 3kg sumo roboteers. More 3kg sumos are needed and the folks at Lynxmotion would give a 10% discount for a group buy. Lynxmotion has also offered $100 if you win with one of their kits at Robothon.

John & Ian have built a linemaze solver that uses an Atmel processor (http://www.atmel.com), BASCOM software tools (http://www.mcselec.com/), and rollerblade wheels. A very cool package!

A Cybiko mini terminal (http://www.cybiko.com/index_uk.asp) was shown. Toys R Us had them for $50 recently. They can receive software downloaded from your PC or be used simply as a "mini terminal". They use several processors including an Amtel 2313.

Ted Griebling showed us the latest capabilities of M&MBot, his cool little M&M shooting robot. He is working on Skittle compatibility. He used GCC and software from Embedded Systems Programming (http://www.embedded.com/).

Stephanie is trying to get a local BotBall competition going this coming year. Robothon 2002 will host the regional BotBall competition (http://www.botball.org/). This competition uses LEGO-based robots programmed to accomplish some designated task inside a time limit. The contest are fast-paced and exciting. The biggest challenge is the programming since most kids now can put LEGO bricks together pretty quickly. There is the possibility that help may be needed later. Keep this in mind if you like working with kids in an energetic enterprise.

The Sensors Expo (http://www.sensorsexpo.com) was mentioned as an ideal show to attend to learn about instrumetation and sensor technology. These are held annually around the country.

Feature Presentation

We had an excellent presentation by Paul Jubinski of Fugro Seafloor Surveys (http://www.seafloor.com). He explained how a "tow fish" or remote navigation and mapping vehicle works. It must accurately determine its position so that its data can be overlayed onto maps. He explained the basic function and technologies of the past and their deficiencies and showed us what is currently in use. For more information on the marine motion sensor he uses see (http://www.seatex.no/vesselrefsys/mru6/mru6.html). See also http://www.kearfott.com for information on SEANAV or Seaboarne Navigation System. Below are simply notes I took. Take them for what they're worth. No guarantee that I got it all right. Let me know if something is really far off and I'll fix the archived version.

- GPS is now good to within a few meters thanks to SA (selective availability) being permanently turned off.
- Tow cable is specially wound to be torque-balanced to protect the internal wiring.
- Current depth limit for tow fish is 1800m (5900 ft).
- Used to use pendulum pots but they stuck (stiction) and didn't respond well to small angular changes.

- Used bubble levels filled with electrolyte solution -- sensed capacitive changes.
- Used compasses immersed in oil baths to slow down movement.
- Current system uses fluxgate electronic compasses configured as 3-axis magnetometers.
- Use the MRU6 now (see above).
    - o 3-axis magnetometer + 3-axis accelerometers to measure pitch, roll, yaw, heave, surge, & sway.
    - o 2 accelerometers per axis.
    - o If the outputs are the same, motion is only orthogonal (up/down, left/right, forward/aft).
    - o Otherwise there is rotational motion (pitch, roll, yaw).

Afterwards

More Line Maze testing (http://seattlerobotics.org/robothon/maze.html) was done after this month's meeting. Several robots showed up for the meeting to run the 12' x 12' maze. This is always fun to watch.

Pizza at Pegasus on Sunset Blvd after the meeting. Directions from RTC: Head north (left) on Monroe Ave NE (east side of RTC). Follow this about a mile to 12th St (stop sign). Turn left and go down the hill to the traffic light. Turn right onto Sunset Blvd. and follow it about 0.8 miles. Pegasus is on the right (south side of the street).