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News for users of
BugBrain™ & ServoCenter™

Robotics Newsletter

"Imagination
is more
important
than
knowledge."

— Albert
Einstein

Yost Engineering, Inc.

www.YostEngineering.com

May 2005

Support Services

All BugBrain and ServoCenter products include free, unlimited, phone and email support.

If you are having problems with assembly, installation, or programming, be sure to include a description of what you are trying to do, the problem or error, and a copy of your program code if it is a programming problem.

We're here to help!

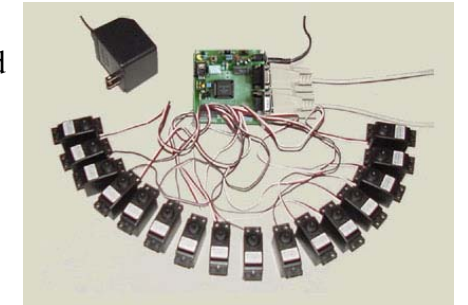
(888) 395-9029

or

support@
YostEngineering.com

New Products in the ServoCenter™ Family

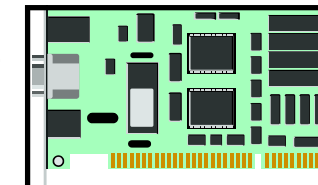
ServoCenter™ 3.1 embedded controllers allow simple control of the seek position and seek speed of up to sixteen connected servos **independently and simultaneously**, and can be daisy-chained to control **up to 256 servos**. This independent control scheme allows one servo to move to a position slowly, while another is moving to a different position quickly, while yet another is moving to another position at a medium speed.



Independent control of both servo position and speed makes the ServoCenter controllers especially useful for applications such as robotics, animatronics, motion control, automation, retail displays, and other areas where independent or coordinated fluid servo motion is desired. (continued on back page...)

BugBrain Contest Deadline: June 30, 2005

Does your BugBrain look amazing? Did you program it to do something new and different? Tell us about it, and you could win a prize!



*Finished Building Your BugBrain?
Show it off!*

Besides, all participants get their name and BugBrain picture on our webpage, so go ahead and show off your creation!

Enter by sending your name, address, age, and email address, along with pictures and programming code (for Bug-Attack contest) to:

robots@YostEngineering.com

Be sure to specify which contest you are entering (you may enter both):

Picture-Perfect Contest: Send us one or more pictures of your assembled BugBrain, showing off your personalized body parts or decorations. One winner gets a \$50 Amazon.com gift certificate. One runner-up gets a \$25 gift certificate.

Bug-Attack Contest: Send us pictures of your BugBrain in action, along with the code that makes it happen (specify whether or not we can share the code with others). One winner gets a \$75 Amazon.com gift certificate, and one runner-up gets a \$50 gift certificate.

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ServoCenter...

(continued from page 1)

ServoCenter products include:

- ServoCenter™ 3.1 RS232
- ServoCenter™ 3.1 USB
- ServoCenter™ 3.1 Chip (Controller Integrated Circuit) — available in DIP, PLCC, and TQFP packages

Visit our webpage for more information!

ROBOTICS NEWSLETTER

COMING UP IN OUR NEXT ISSUES...

BugBrain

What additions and modifications would you like to make to your BugBrain? Let us know what you would like to do, and we'll try to help you out with instructions and tips in the next newsletter.

Did you already do something cool? Want to share? Send us your own design tips and expansions, and we will share them with other users (and don't forget to enter them in our contest too!).

Coming up in the next couple of issues, you will see:

- How to Play .Wav Files

- All about EEPROM
- Adding a Range Finder
- Troubleshooting Tips
- Soldering Do's and Don'ts

ServoCenter

And for those of you working with ServoCenter, please send us your questions, tips, suggestions, and project pictures or descriptions.

In upcoming issues, we will be featuring:

- Troubleshooting Tips
- Projects using ServoCenter

Making Your BugBrain into a Musician...

Puvi R. recently asked us to help with translating notes in the musical scale to frequencies which can be input into BugBrain. So, here you go — if you want your BugBrain to sing Do-Re-Mi or any other sequence of notes, here's a quick reference chart to make your work go much faster!

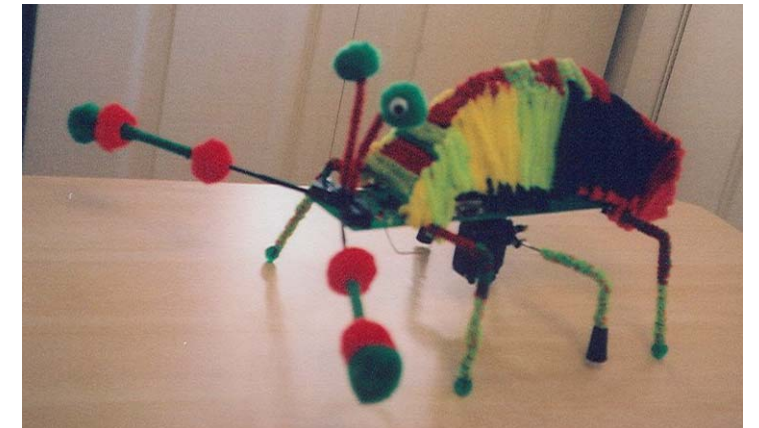
OCTAVE 0	FREQUENCY (Hz)	OCTAVE 1	FREQUENCY (Hz)	OCTAVE 2	FREQUENCY (Hz)	OCTAVE 3	FREQUENCY (Hz)	OCTAVE 4	FREQUENCY (Hz)
A-0	27.500	A-1	55.000	A-2	110.000	A-3	220.000	A-4	440.000
A#-0	29.135	A#-1	58.270	A#-2	116.541	A#-3	233.082	A#-4	466.164
B-0	30.868	B-1	61.735	B-2	123.471	B-3	246.942	B-4	493.883
C-0	32.703	C-1	65.406	C-2	130.813	C-3	261.626	C-4	523.251
C#-0	34.648	C#-1	69.296	C#-2	138.591	C#-3	277.183	C#-4	554.365
D-0	36.708	D-1	73.416	D-2	146.832	D-3	293.665	D-4	587.330
D#-0	38.891	D#-1	77.782	D#-2	155.564	D#-3	311.127	D#-4	622.254
E-0	41.203	E-1	82.407	E-2	164.814	E-3	329.628	E-4	659.255
F-0	43.654	F-1	87.307	F-2	174.614	F-3	349.228	F-4	698.457
F#-0	46.249	F#-1	92.499	F#-2	184.997	F#-3	369.994	F#-4	739.989
G-0	48.999	G-1	97.999	G-2	195.998	G-3	391.995	G-4	783.991
G#-0	51.913	G#-1	103.826	G#-2	207.652	G#-3	415.305	G#-4	830.609
OCTAVE 5	FREQUENCY (Hz)	OCTAVE 6	FREQUENCY (Hz)	OCTAVE 7	FREQUENCY (Hz)	OCTAVE 8	FREQUENCY (Hz)		
A-5	880.000	A-6	1760.000	A-7	3520.000	A-8	7040.000		
A#-5	932.328	A#-6	1864.655	A#-7	3729.310	A#-8	7458.620		
B-5	987.767	B-6	1975.533	B-7	3951.066	B-8	7902.133		
C-5	1046.502	C-6	2093.005	C-7	4186.009	C-8	8372.019		
C#-5	1108.731	C#-6	2217.461	C#-7	4434.922	C#-8	8869.845		
D-5	1174.659	D-6	2349.318	D-7	4698.637	D-8	9397.273		
D#-5	1244.508	D#-6	2489.016	D#-7	4978.032	D#-8	9956.064		
E-5	1318.510	E-6	2637.021	E-7	5274.042	E-8	10548.083		
F-5	1396.913	F-6	2793.826	F-7	5587.652	F-8	11175.305		
F#-5	1479.978	F#-6	2959.956	F#-7	5919.912	F#-8	11839.823		
G-5	1567.982	G-6	3135.964	G-7	6271.928	G-8	12543.855		
G#-5	1661.219	G#-6	3322.438	G#-7	6644.876	G#-8	13289.752		

CONTEST WINNERS FOR THE JANUARY 2005 CONTEST...

Picture-Perfect Contest

This winner sent us the coolest picture of a custom-decorated BugBrain, and receives a \$50 Amazon.com gift certificate.

First Place: **Christopher B. and Ales M. from Pocatello, Idaho.** Their BugBrain is named Sheldon, although he became affectionately renamed "Rainbow Dinosaur" by our office staff.



Meet Sheldon, aka Rainbow Dinosaur!



Vision Circuit BugBrain, on the Prowl...

Bug-Attack Contest

This winner sent us pictures of his BugBrain in action, performing some cool stunts like locating and hunting down a paper towel roll. (Okay, it's not quite like finding a guy in a small hole in the middle of giant desert, but for a little BugBrain, this

is pretty good!) The winner also sent us source code, and has generously posted his modification code and instructions on his webpage so that others can do this too. He gets a \$75 Amazon.com gift certificate.

First Place: **Eric A. from Norcross, Georgia.** His entry is called Vision Circuit BugBrain. Congratulations to Eric not only for his nifty programming and addition of vision capabilities, but also for winning first place in the Open division of the Atlanta Hobby Robot Club Robot Rally last year.

To find out how to use Eric's tips on adding the circuitry and programming for the Vision Circuit BugBrain, visit his webpage at:

<http://www.ayershome.org/users/eric/robots/bugbrain/BugBrain.html>

You may also want to visit the Atlanta Hobby Robot Club's page, and check out what their other members are up to:

<http://www.botlanta.org>