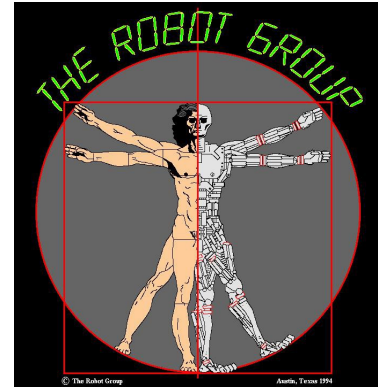


“RoboSpinArt”

by Vern Graner

*Denise Scioli, Rick Abbot,
Paul Atkinson, Les Filip*



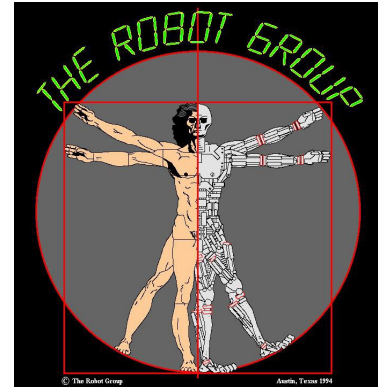
The venerable spin art machines of the 1960's & 70s created funky, psychedelic artwork many of us remember from carnivals and county fairs. Simply put, “spin art” is created when paint is dropped onto a rotating paper, allowing centrifugal force to make streaks of color. The RoboSpinArt machine updates this concept by making spin art attractive to the so-called “joystick generation” of today while also overcoming some of the limitations of the original design.

The RoboSpinArt machine allows you to create spin art by using a joystick to position a “paint gantry” above the paper and a series of buttons to dispense paint in measured amounts. Add an exciting light show, a rocking sound track, and a countdown timer that creates a sense of urgency, and you have a RoboSpinArt machine!

Commissioned by First Night Austin

“GatorGirl”

By Brooks Coleman
Animatronics by Vern Graner



GatorGirl is an animatronic sculpture created by Brooks Coleman. Hand crafted and sculpted from individual aluminum sheets. As are many Robot Group projects, GatorGirl is a work in progress.

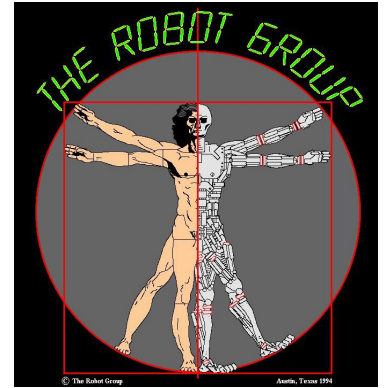
She was originally envisioned as a “sentry” robot to guard access to a doorway. She would move her robotic eyes to scan the person requesting access and then, if they are allowed to gain entry, she would use a series of motors implanted in her arm to pull back a spear thus clearing the way for the person to enter.

The animatronic eyes have recently been installed, but she is still waiting for the installation of her arm motors and delivery of her Spear.

“Sisyphus”

*By Rick Abbot
& Paul Atkinson*

***On loan from Denise & Mike Scioli*



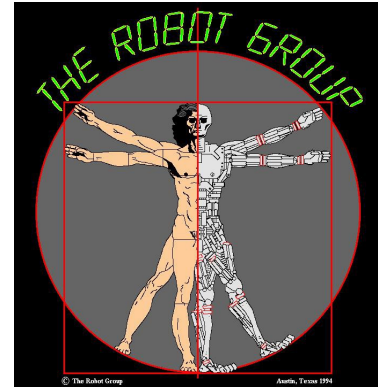
The original Sisyphus was a mortal condemned by the gods to ceaselessly roll a rock to the top of a mountain, whence the stone would fall back of its own weight. The “Sisyphus” kinetic sculpture was inspired by an art installation bearing the same name located in Winterthur, Switzerland.

“Sisyphus” uses a rotating robotic arm located under the Plexiglas table to move a magnet. On the top of the Plexiglas (in the sand) is a steel ball bearing that is held in the grip of the strong magnet attached to the arm. As robotic arm is moved, the ball bearing is pulled through the sand creating patterns.

A computer is used to convert mathematic equations into the interesting valleys, ridges, and lines that are displayed in the sand. After completing a pattern, the computer activates a rotary oscillator to “clear” the sand thus providing a “clean slate” for it's next design.

“Glamour Girl”

By Brooks Coleman



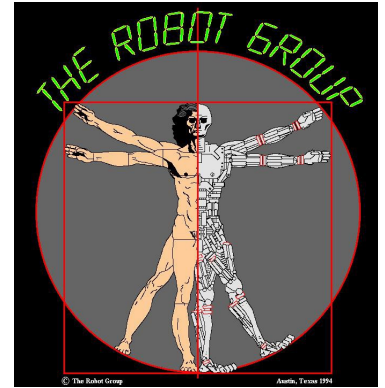
Glamour Girl is a static sculpture composed of a steel plate and “rebar” skeleton covered in copper wire, aluminum wire, strings of metal beads, wire pipe cleaners, EL (electro-luminescent) wire and other bits of shiny bendable material.

The key part of Glamour Girl is the EL wire woven into her body. Though it looks like glass “neon” tubes, the EL wire is actually flexible plastic and produces little or no heat. The EL wire is connected to a mechanical sequencer that causes each of the EL wire strands to illuminate in turn as the motor moves the mechanical contactor through a series of positions.

The mechanical sequencer can be run at different speeds to change the overall look and feel of the piece. Though glamorous in any lighting, she really “shine” in a low light environment where her strands of EL wire can create a glowing nimbus around her form.

“X.A.R.”

By Vern Graner



“X.A.R.” or “Experimental Arachnid Robot” is an animatronic stage prop created for use in a charity fund raising Halloween haunted house. X.A.R. has two servo operated arms and a rotating turret underneath a clear plastic dome.

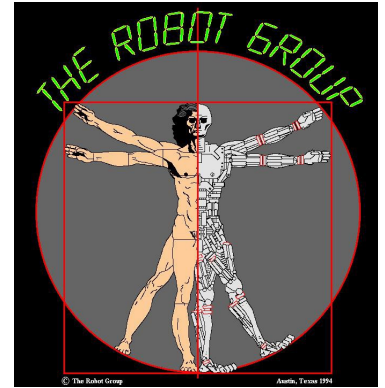
The turret supports a plastic model tarantula spider that uses a small electric motor to animate its legs. A computer system coordinates the motion of the legs and the turret so the spider legs will “wiggle” each time the turret moves to a new position, providing the illusion that the spider is walking from position to position inside the robot's head.

The lights that surround the spider are actually “ultra-violet (i.e. “black lights”) that cause the fluorescent paint of the spider's fur to glow. The majority of X.A.R.'s body is constructed from wood, aluminum and various parts easily obtained at any hardware store.

“Maxx Steele”

By IDEAL Toys ~1986

***On loan from Vern Graner*

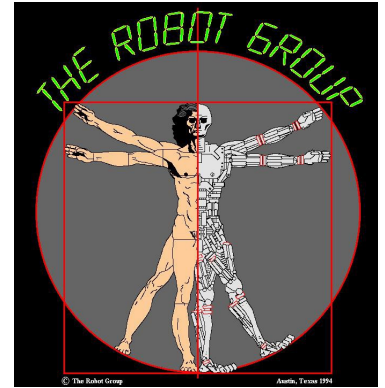


Introduced in 1984 by IDEAL Toys, Maxx Steele was a very advanced robot for his time. He came complete with a 3 axis moving arm, a “gripper” that could grasp things like a can of soda, a motorized base, blinking eyes, a digital clock and a vocabulary of over 140 words. He also had a rather marked resemblance to the robot “R2D2” made famous in the Star Wars movie saga.

He was programmable using an included radio control unit and could be programmed to perform tasks and “play” them back on command or at a specific time. Using Maxx as walking, talking singing alarm clock was a common practice. At over just over \$500.00 retail, The Maxx Steele was rather expensive for a toy and sold only 5000 units before he was discontinued. Operational Maxx Steele robots are becoming somewhat rare and are now considered collector items.

“S.U.V.”

By Kym and Vern Graner



The S.U.V. Or “Shy Ultra Violet” was inspired by a simple vegetable steamer. By adding a small servo motor it was possible to open and close the steamer in a way that resembles a flower blooming.

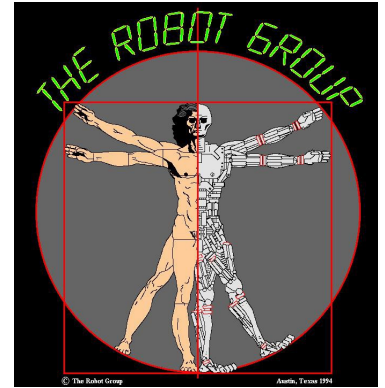
The concept behind the S.U.V. Was to create a kinetic sculpture that would act as a focal point for children while encouraging them to be quiet. The small computer would be programmed to “listen” to the room's audio level and then react by opening the flower if the room became quiet enough.

The current unit does not yet have the sound detection circuit complete so is currently only able to “exercise” the flower open and shut as an example of the type of motion the sound levels will create.

“I-Cybie”

By Silverlit Electronics

*****On loan from Paul Atkinson***



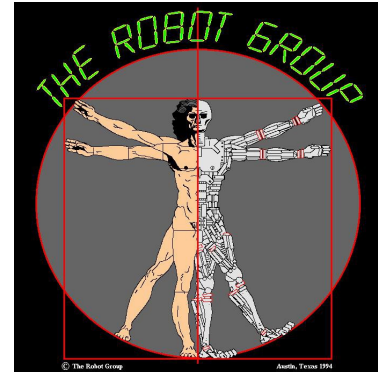
i-Cybie is a robotic pet that resembles a dog. It is manufactured by Silverlit Electronics. It was positioned as a bargain priced competitor to the Sony AIBO robotic dog. With the AIBO costing over \$1650.00, the i-Cybie was very attractive with its introductory price of \$199.99.

The i-Cybie robot responds to sound, touch and voice commands via a wireless remote control. The i-Cybie does possess a limited amount of artificial intelligence, but is not yet capable of autonomous learning.

The i-Cybie was one of the first robot pets on the market that could power itself via it's Walk-Up-Charger. The 4-pound i-Cybie dog is made up of over 1,400 parts and over 90 feet of wire.

“Stirling Engine”

Model by Rick Abbot

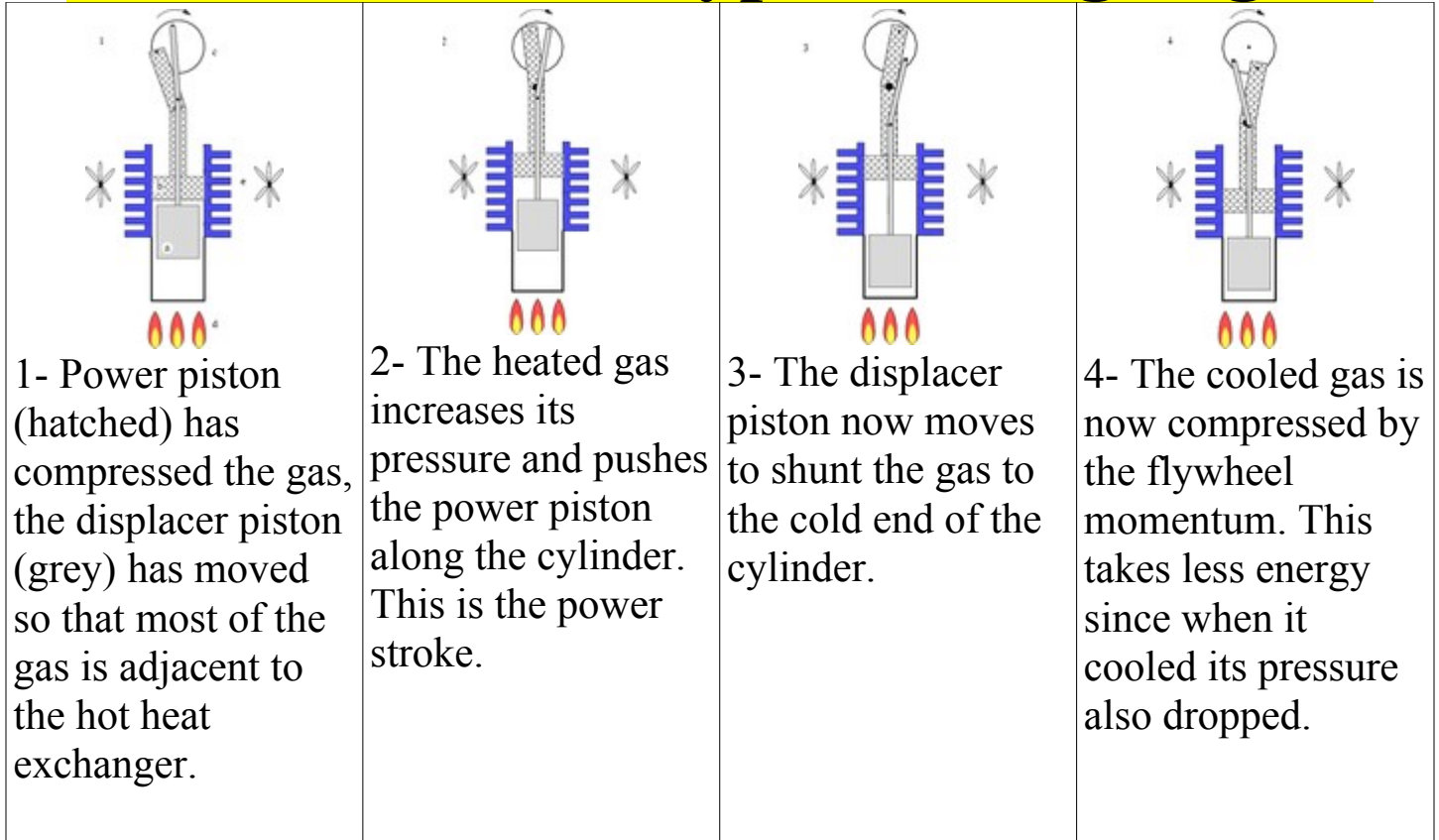


Invention of the Stirling engine is credited to the Scottish clergyman Rev. Robert Stirling 1816. He was later assisted in its development by his engineer brother James Stirling.

The inventors sought to create a safer alternative to the steam engines of the time, whose boilers often exploded due to the high pressure of the steam and the inadequate materials. Stirling engines will convert any temperature difference directly into movement.

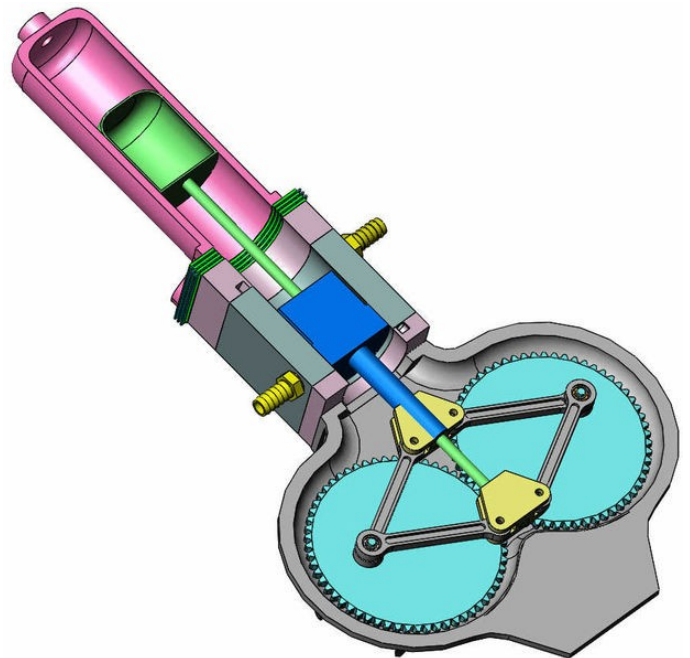
Each of the models seen here were hand machined from aluminum, glass, steel, brass, graphite and other (sometimes rather hard to work) materials. Stirling engines are notoriously difficult to create from scratch as they depend on fine balances in order to work properly. These operating models represent **years** of machining time and attention to detail.

Action of a Beta type Stirling engine



Rhombic Drive Beta Stirling Design

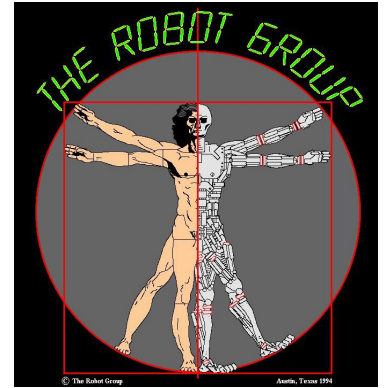
A beta Stirling has a single power piston arranged within the same cylinder on the same shaft as a displacer piston. The displacer piston is a loose fit and does not extract any power from the expanding gas but only serves to shuttle the working gas from the hot heat exchanger to the cold heat exchanger. When the working gas is pushed to the hot end of the cylinder it expands and pushes the power piston. When it is pushed to the cold end of the cylinder it contracts and the momentum of the machine, usually enhanced by a flywheel, pushes the power piston the other way to compress the gas. Unlike the alpha type, the beta type avoids the technical problems of hot moving seals.



“Mechanical Flower”

*By Denise Scioli
& Pui Yee Hung*

Animatronics by Vern Graner

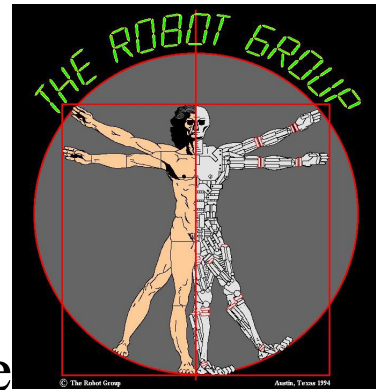


The mechanical flower was inspired by the S.U.V. (Shy Ultra Violet) project. The mechanical flower was designed to be more outgoing and attention seeking. The design called for the placement of a sonar range finder on the front of the flower to detect distance from the people in front of the sonar unit.

When the flower detected someone close by, it would start to play music and move more energetically, flashing it's LED petals and enticing the viewer to come closer. The current unit does not have a functional sonar sensor and is currently stepping through diagnostic patterns of motion to exercise all its functions of light and motion.

“The Babbling Head”

*By Brooks Coleman, Alex Isles,
Bill Craig & Eric Lundquist*



The babbling head is a kinetic sculpture made from both exotic & common woods such as Purple Heartwood, Pow Amavia Wood and Oak. The organic “brain” in this robot is a piece a Tanzania root. The base of the piece is Purple Heartwood and the neck and collar bones are Pow Amavia wood. The robot is also fitted with servos, LEDs and a vintage DECTALK speech generator and a Linux computer.

The computer sends “written” words to the DECTALK. The DECTALK then converts these words into sounds. The words (as “spoken”) are then sent back to the computer where they are evaluated and converted to movement commands for the jaw & lips. This allows the head to re-create the motions that a “real” face/mouth would create when speaking words.

The babbling head has been featured in numerous magazine and newspaper articles as well as on “The Insomniac with Dave Atel” on Comedy Central in July of 2003.