

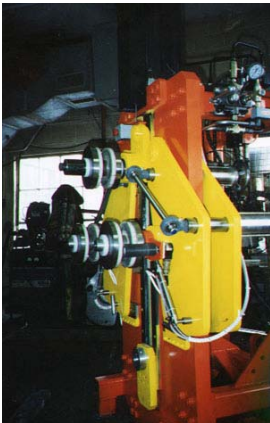


MANNETRON

74 Leonard Wood Drive
Battle Creek, MI 49015-1009
(616) 962-3475
E-Mail: mike@mannetron.com

The purpose of this resume is to make you aware of the adversity we have. All of these designs were delivered and followed through to the end result that was requested. Please look them over and keep us in mind for nay creations you may need.

This is a list of projects that include a description of what was created and for who, as well as a photo where they are available.



Blinds Israel ~ *Three-ring CNC Roll Former* ~ The specs for these were to create a roll former that would repeat bends for aluminum extrusions for window frames. The problem to overcome was that each time they receive a new batch of aluminum, the bends would change. We were to create a machine that would check the bend half way through the process and re-adjust the setting if needed. We created a database that the machine referred to in order to make the necessary adjustments. This machine was a position system that is accurate to .0005". We designed and manufactured seven versions of this machine over a five year period.

Kodak, Rochester, NY ~ *Off Ratio Dispenser* ~ The specs were to create a



machine that could dispense off ration urethanes within .1% accuracy. The machine had to dispense four different compounds into a cylinder. The material had to be shot into a spinning cylinder and had to create a belt that was .004" thick. We designed and fabricated the machine as well as wrote the software. The software was designed to automatically adjust the settings and ratios

from the data sheets. The database was designed to keep track of all the belts made with the settings.

Liberty Circuits, Kalamazoo, MI ~ *Braille Card Reader* ~ We designed the Braille Card Reader to assist the sight impaired. The specs for this were to create a portable message unit that would record voice onto a numbered, Braille, credit card. The card could then be replayed to assist the sight-impaired individual with daily routines. The unit had to record 50 messages each being 10 seconds long.

Keith Code's Super Bike School, Glendale, CA ~ *Motorcycle Tilt Sensor and Engine Staler* ~ The specs were to produce a device that could set the angle of a motorcycle when the front wheel lifts. When it lifted off the ground, the device shorts the spark plug so that the cycle does not flip. This development had to overcome the inertia and vibrations from the cycle and had to be adjustable to several different angles.



International Robotics, Inc., New York, NY ~ *Remote Controlled Entertainment Robot* ~ The specs for this were to design a mobile robot that could be shipped all over the world. The unit has programmable message display, special effects sound system, light system, remote voice controller and seven motions with remote control. The controller is worn in the pocket of the operator. We have designed eight of the "Roll Around" robots over the last five years.

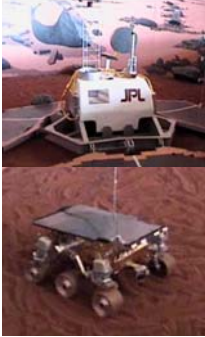
Ray Corporation, Tokyo, Japan ~ *Tele-Operated Robot* ~ Design spec was to design and produce a 42 motion, tele-operated robot. The unit had to be portable and operated from a remote location. The operator is fit into a Waldo suit that picks up all of his body positions and transmits them to the robot in real time. The suit is adjustable for different operators. We designed and fabricated a unit that met all of the specs. The following year we designed one for the Ford Motor Company that traveled all over the globe to major international auto show.



IP Innovations, MI ~ *Load Cell* ~ The design spec was to develop a load cell for a car hoist system used in garages. The system detected the load of the car and shut off the lift when the car was not balanced. Mannetron developed the hardware for this in several weeks.

Stout Systems, Ann Arbor, MI ~ *Vinyl Sensor Scanner* ~ Design spec was to produce a scanner that senses the color of vinyl. The unit scanned the interior dashboard at an automobile assembly company. The color is then checked to make sure it was correct for that car and report it to the quality control computer.

Liberty Circuits, Kalamazoo, MI ~ *Optical Sensor* ~ Design spec was to create an Optical Sensor that shows the drill pattern of a printed circuit board on a monitor. It then allows the operator to lineup the cross hairs and aids him in calibrating the circuit board drill.



Jeff Bernstein Display for Michigan Space & Science Center, Jackson, MI ~ *Mars Lander & Rover* ~ The unit was built from the NASA drawings and operates from a remote location. The mission control system has 3D camera feed back from the Lander and the Rover. The vehicle has cameras on the front and rear that gives the operator a full 3D view while driving it over the surface of Mars. This gives the operator a similar experience to the original landing.



Interior Systems, Inc. for McDonald's Corp. ~ *Ronald McDonald Robot Entertainment System* ~ The robot was to have a moving and singing Happy Meal guys. The has a programming panel that controls the unit from a remote location. The unit has four stepper motors and three servo motors. We wrote the music and produced four hours of songs and messages. We delivered 25 of these over a period of three years.



Mannetron, Battle Creek, MI ~ *Rotational Casting Machine* ~ The design spec was to develop a machine that will turn molds in all directions. The machine has two variable speed drives that maintain a constant speed and has 12 speeds in any direction. We offer 3 sizes of this machine and delivered more than 120, world-wide.

VIFS Flight System ~ The design spec was to create a low cost Flight Information System that gives the pilot a grid of the area around the plane and show all of the planes in the area. It would also give the pilot which ones will collide with Him/her. Another feature is that the system brings weather and other vital information to the screen.

Van's Instruments, Kalamazoo, MI ~ *Surgical Eye Reading Unit* ~ The design spec was to create an eye surgical unit that took readings of the eye thickness from a pachometer plus two micrometers from a microscope. The unit gave the correct depth for setting the scalpel for surgery. This unit encrypted the data and stored it for patient files so that the settings could be referred to in the future.

Birchwood Industries, Michigan ~ *Body Controlled Temperature Unit* ~ The design spec was to create a device that fit the skull and delivered a controlled temperature fluid to the head. The device would reduce swelling in closed head injuries. We developed and fabricated the device of silicone tubing in the form of a hat. The cooling unit was done with a cooling chip that was portable and used low energy.



DGP Industries ~ *SOS Beacon* ~ The design spec was to create a beacon that sends out SOS light messages and GPS location transmissions. This unit had to float with an eight-hour battery life to send out both the transmission and blink the 2 million-candle watt light. The unit had to be rechargeable and indicate the battery life. This unit would be tossed into the water and switched on during an emergency.

Alumilite Corp., Kalamazoo, MI ~ *Bottle Filling System* ~ The design spec was to create a bottle filling system that controlled a valve and used a conductive sensor to monitor the amount of fluid in the bottle. This prototype went into production and is currently being used in a production facility.

Delta Design, Orlando, FL ~ *Playnote* ~ The project spec was to create a sensor that would be imbedded into the playland floors in McDonald's for a floor game. We also designed and produced a game that replicated the Simon Says toy. The finished design produced several hundred of these systems.

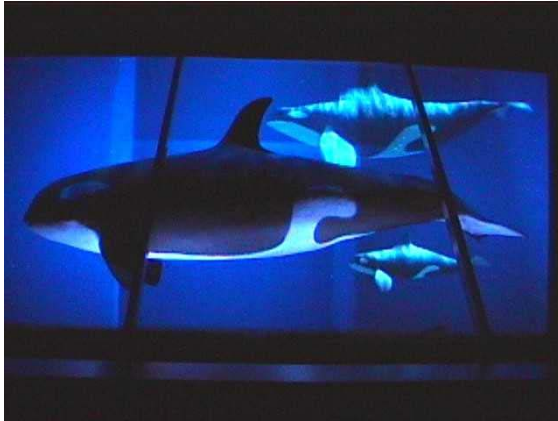
Delta Design, Orlando, FL ~ *Information System* ~ We were to create an information system for Disney, where the guest pushed a picture of the restaurant or hotel of their choice and the phone would connect to that facility.

Med-net ~ *Kneel-Kar* ~ The design spec was to create a remote control system for a car that added a wheel chaired person. The unique difference with this car was that a wheel-chaired person could drive it with no lifting or help from another. We designed a microprocessor-controlled remote that had security codes and safety parameters.



Med-net ~ *Kneel-Kar* ~ The design spec was to create a hydraulic system that opened the back door, dropped a ramp and pulled the car to the ground. The system had to be timed so that each of the functions was in sequence. The major obstacles were: Where to put the system and durability.

Med-Net ~ Kneel-Kar ~ The design spec was to have the driver seat move back to where the back to where the back seat would be so that the wheel-chaired person can transfer. The seat had to be powerful enough to move any size person and had a place to put paralyzed lets.



Dentsu Tec, Inc., Nagoya, Japan ~ *Killer Whale* ~ We were to design and produce a full size animatronic whale and show control system. The key spec was that the whale had to swim per the formulas of a renowned professor kinetics. We designed and manufactured the whale using high tech electronic actuators.

Dentsu Tec, Inc., Nagoya, Japan ~ *Flying Saucers* ~ The design spec was to manufacture five large flying saucers that travel on a cable, by remote control, over the whale and dolphin show tanks. The saucer drops a soccer ball by a remote link. Each saucer has an independent link to the remote. Obstacles were weight, salt water and the remote link.

We have many additional projects that I could list but this should give you enough to show you our broad ability. I will send a package of pictures and promo soon.

Please contact me at 616-962-2124 or by email at mike@mannertron.com.

Thank You,

Mike Clark
President