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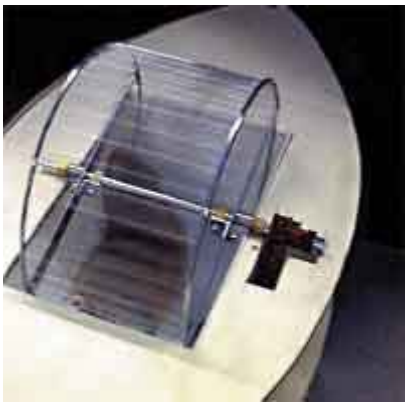
Hamster

symbiotic exchange of hoarded energy



The *Hamster* project attempts to create a symbiosis between a population of hamsters and a fleet of vehicles steered by microcontroller. Ten golden hamsters inhabit tiny quarters situated within a sand-covered surface measuring about 60 m2. The hamsters can move about freely in this area.

Also distributed throughout the area are ten vehicles, each of which is powered by a hamster running wheel. Mounted on top of each vehicle are solar cells and a rotating sensor by means of which the vehicle spatially orients itself and can transmit corresponding steering commands to its control system. A source of bright light is installed at one end of the area; on the other side, in semi-darkness, there is a feeding station which provides the hamsters with food. In the vicinity of the light source, the vehicles can collect energy through the solar cells; this energy is then transferred to the feeding station when the vehicles dock there.

When a hamster boards a vehicle and begins to use the running wheel (hamsters enjoy this and do it frequently), it automatically drives the vehicle. The vehicle, in turn, steers a course for the light source and, once it arrives there, blocks the running wheel in order to tank up on energy through its solar cells. Once it has finally filled its accumulator, the running wheel is released, the next hamster can board the vehicle and drive it in the direction of the feeding station. There, the vehicle transfers a portion of its energy to the feeding station, which immediately uses the quantity of energy it receives to dispense a portion of feed. The hamsters now bring this feed to the safety of their quarters, while the vehicle awaits the next hamster to once again make the return trip to the light source for an energy refill.

Since only the vehicles can provide energy to the feeding station, the hamsters ensure their own survival by making their own physical power available as the vehicles' driving force. The point of this is not to condition the animals and thus to direct their behavior to perform according to a certain pattern; rather, a previously existing behavioral pattern–the hamsters' habitual use of their running wheels for long periods of time–is instrumentalized by the vehicles. Thus, the hamsters do not even "notice" that they function as engines and provide for their own nutrition thereby.

Is it possible to generate synergistic effects out of the collaboration between highly developed mammals on one hand and machines on the other, if those machines are smart enough to take

advantage of certain habits of the animals for the machines' own purposes without abusing the animals?