

"Epipod" Electronic Ping-Pong Ball Dispenser

The Xilinx Spartan-3 delivers brake and direction logic to the H-bridge. The H-bridge is powered by 12V DC supply, and the H-bridge outputs go to a 12V DC motor. The Spartan-3 is programmed to give the H-bridge brake logic "high" when the motor is not to be moving. When the Spartan-3 gets logic "high" from either button, it sends logic "low" to the H-bridge brake input and either high or low to the direction input to determine motor direction. If there is 3 or less balls in the reservoir, the infrared optical detector goes high, it sends a high input to the Spartan-3, and "3" is displayed on the display. The Spartan-3 then counts down when either button is pressed until there are zero balls, then the buzzer sounds. The buzzer is directly connected to one of the output ports on the Spartan-3. The structure itself is basically a wood cube, which stands atop a PVC pole. It features a plexi-glass front to allow viewing of the Spartan-3 and the ball delivery system. The 2 buttons are to be mounted at the end of the table and leads run from them to the main unit.

Epipod's purpose is to eliminate back fatigue from repeatedly having to bend down and pick up balls during play. It also keeps the action moving by eliminating breaks due to lost or runaway ping-pong balls.

Parts List:

Amt.	Part Description	Allied
1	-Xilinx Spartan-3 Starter Kit (not on Allied site)	(Xilinx) DO-SPAR3-DK
1	-National Semiconductor H-Bridge, 3A, 55V	288-1572
1	-Acoustic buzzer	623-1997
1	-12V, .42A DC power supply	653-0242
2	-10 nF capacitor	881-3322
3	-330 Ohm resistor	296-5216
2	-Normally open button	948-7199
1	-Proto board	977-1951
3	-1000 microF capacitor	852-0011
1	-Optical detector	263-0909
1	-infrared emitter	980-9991

“Epipod” Electronic Ping-Pong Ball Dispenser Functional Diagram

