Axiom EVBU Board (Used in Microprocessor Classes before HC12)
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Using the Axiom board was quite a challenge, because many headers and wirings of pins had to be created to make the proper connections. One major modification of the board was required, as well several building or headers on the prototype areas.

Board Modification

The axiom board pulls 4 of it's analog pins to ground, to be used for the Keypad port. This means that whatever you plug into the low 4 bits of PortE must push enough current to overcome these pull-down resistors.

Hacked IR cans **DO NOT** push enough current to do this.

Do yourself the favor of looking up the schematic for the board on www.axman.com and removing the pull-down resistor (it is SIP and located near the keypad port. There are actually two. Only one is responsibly for the pulldown.) This can be done in several ways:

1) Use a soldering iron to remove the single-in-line package resistor that is pulling them down. You may want to inspect the board very carefully before doing this to ensure that all connections are maintained. Run solder in the holes once you are finished to keep these connections. (For example, the traces from the microprocessor's PortE may go to this resistor on the top of the board, and then on to the headers through a trace on the bottom of the board. Destroying the hole, and removing the soldier may break this connection.)

2) Locate the pull-down resistor, and find the ground bus that connects the four resistors to the rest of the ground network. You can cut this ground-chase and float the entire resistor network. Be sure to cut in the right place, because there are 5 connections on the ground bus in this location, and you only want to cut after the first four.

Building on the Board

You can build-in a lot of headers with power and ground as well as a signal on the prototyping area provided. On one side, I put all of my three-write connections (power, ground, signal). This includes IR-Cans, Shaft Encoder, and Servos. Down one column run high quality wire for power and down another ground (I recommend the middle of the three be power, so that power is always hooks up properly, and at worst you hook up ground to an input. Power and Ground will never get mixed up if one is the middle).

Make sure you connect ALL power and ground to high-current draws (ie, motors) directly to the power connection, not through the voltage regulator. Wire-wrap all signals to the headers, and then solder the other end of the wire to the proper header on the axiom board.

On the other side of the board (there are two prototyping areas), I was able to put in a divider chip (HC390) which takes the 2MHz E-Clock and divides it into a 40kHz signal to modulate the IR with. Likewise, a socket for a latch to create the proper IR signals was put over there. Along one edge, then, all of the headers for all of the LEDs can be placed.

Do yourself a favor, and do not use the white-breadboard. Test things on it, get them working, and then solder them somewhere. Depending on that white-breadboard in a pinch is going to cause all kinds of headache.

Power Supply

You can use a standard 6-pack of batteries to power this thing. Find which is ground and which is power, buy the proper connector from radioshack (they sell them), and solder your connector to the wires from the battery-pack. You can power the board in this fashion.

Conclusion

The Axiom board can work but it requires a lot of "re-inventing" of the wheel. You will spend a lot of time getting up to a Talrik. You will spend a lot of time designing and soldering the headers on your board, as well as writing basic functions to drive whatever pins you decide to hook up to control these guys. Essentially, you will spend about half of the semester getting up to a Talrik. Make sure you remind the TA staff and the professors that you did this, because anyone who just bought a Talrik from the getgo will have a head-start on you. The board is also extremely big, so be prepared to have a large robot.

Those are as many caveats as I can give. If none of those seem to concern you, then by all means save the money and use the Axiom board you or a friend have. And thank god, that you didn't spend three days with an oscilliscope trying to figure out what some of your PortE wasn't working, while some of it was – because it was pulled down to ground on the actual board itself.