

Team Being Reviewed: Group 13

Reviewed by: Timothy Koba (*Group 4*).

November 7th 2018

Comments on the Project Description/Introduction

The explanation of the project was understandable: an automated fan designed to turn on if a threshold temperature is exceeded. However, it was not clear whether the fan speed was automatically adjusted to reflect how much the room temperature exceeds the threshold voltage, lower speeds for smaller differences, and higher speeds for larger differences in temperature. In a future description make this clear. There are some grammatical errors which need fixing.

Comments on Schematic

Passes electric rule check with no errors. That's good.

There is almost no labeling explaining the various functions of the parts of the schematic. I had to just guess what things are, and I could not determine all the functions of the parts of the schematic. I had to look up what the encircled addition symbol meant by finding the component in the component libraries. I had no idea it was to stack PCBs. Should have labeled stages like "Power Stage", "Serial Programming Port", "16MHz Crystal Oscillator", and so on. It would be especially nice if interrelated parts of the circuit were located next to each other, e.g., the power indicating LED were located next to the power stage.

Writing this new paragraph after one more glance over the circuit, I realized there was some labeling. But labels were only on the net layer and the font is really small! This needs to be fixed. What you value you set V_{cc} to be is unclear. Perhaps because you used net names to force them to the same value, which, Andrew has said, you should refrain from doing unless there is a good reason. But, looking at where you connected the 5V power supply to noise reducing capacitors, it's unclear what you set V_{cc} to be. I still haven't found out yet! Honestly, I think you forgot to set it by connecting it to your 5V supply. Looking at the V_{CC} pin on the ATmega32U4, however, it appears you did this with a zero ohm resistor (R4). Why? That is just a wire.

Please, divide the schematic into interrelated stages/parts, enclose these stages in gray on the documentation layer (not the net layer), and provide them with descriptive titles. Especially for the functionality of the LEDs. Also, please, please, reduce the amount of diagonal wires which intersect other wires on the schematic. I would prefer there weren't any for neatness.

Comments on Board Layout

Does not pass design rule check. Needs to be fixed.

There are airwires! This is not good. It means parts of the circuit are not connected. You must not have run the design rule check (DRC) command, because it does not pass. This is possibly why the project isn't working. There's an overlap which will force signals (GND and PD4) to be the same. That won't work. Also, some EAGLE complains about two clearance issues, one which you'll fix when you get rid of the overlap, and the second is that your RST and PD4 signals come really close. You should reroute to be safe. There are some wire stubs, but they are really short and I don't think they would hurt at 16MHz.

Comments on the BOM

Pending. Not provided by the group as of yet.