**Propeller Hat**

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**Abstract**

The purpose of this project is to create a motorized, remote controlled, and battery powered propeller hat.

This project will require electrical engineering, programming, CAD, soldering, and immense amounts of research to create a device that is fun for all ages. All eyes in the room will immediately be on you when you enter with this miracle of aviation on your head.

**Project Details**

My motivation for making this project is that I enjoy making people laugh. If for even a moment, I can get them to forget about whatever they might have going on in their life and just laugh, it is worth it.

In my mind, this hat is going to be a great way to get your friends laughing at a get-together, or just a fun gift to give to a child.

This hat will have a motorized propeller. It will be built in such a way that it is not obvious that the propeller is motorized until the user turns it on.

Instead of it just being one speed, which is what would happen if the motor was just wired directly to the battery, it will have a processor and a motor board which will allow a very fine adjustment of speed, plus it gives the option to have preprogrammed tricks and perhaps upgraded features in future revisions.

The main reason for implementing it this way is that I find it more fun to just have it spin slowly than at full speed all of the time. The processor will have a Bluetooth module which will allow the hat to be controlled remotely via an app on your phone.

I am going to use CAD software like Fusion 360 to design most of the 3D printed materials and I will use Arduino hardware and software to program the controls. I will also use Cinema 4D for other parts of the project.

The project will be good enough when the hat can be controlled at all without needing to plug it in and upload code to it. It will be done when the main functions can be controlled remotely and easily using the app.

**Background**

I have never worked with an Arduino board or a Raspberry Pi. I am a complete novice with CAD and Cinema 4D, which I will have to get good with if I want to make a product that looks good and not just a ball of wire that will get me arrested if I try to go through the airport with it. On the topic of wires, I have never soldered any wires before so I will have to learn how to do that too. Essentially, I will have to teach myself engineering and design for this project to even be presentable, regardless of whatever code I will also have to learn how to write.

**Changelog**