

**GUEST SPEAKER** But we got the propellers to start spinning and everything. But then, the first problem was that  
1: the propellers weren't spinning fast enough.

**GUEST SPEAKER** Yes This is like the motors that were spinning the propellers. However, the motors are too  
2: small, that it cannot provide enough force for the drone to fly. So basically, we disassembled everything and we get advice from one of the clubs on campus, which is MITERS. And they tell us, our drone is not going to fly. But I know people in our class that have seen it spin. Like all of the four of us. Unfortunately, we weren't able to take a picture of our initial drone. But we got inspired by it, and so, Daren, do you want to talk about the transmitter and receiver. The gyroscope that we were initially working on.

**GUEST SPEAKER** OK, so for the basic drone, we got the basic sensors, like the gyroscope. So we managed to  
3: get data off that and we tried to plan a simple way to base on the balance until hard to distribute the power and arrange it so that if it tilts this way, the cycles will spin fast.  
[INAUDIBLE] I don't know [INAUDIBLE] I mean, it might. If the drone is, again, to the side, we just add more power to the other side to compensate for it and try to keep it stable.

That was the initial plan. Managed to get the readings off the gyroscope so we can actually distribute the power correctly. We were trying to control it with a simple joystick using RF transceivers, but we managed to get-- it was working a few days ago, then it suddenly decided to break and die. So we just scrapped the entire idea and just went with direct control. So for this [INAUDIBLE] we just tried to-- OK. As soon as we had the [INAUDIBLE] we had the [INAUDIBLE] control. And I rotate the fan spin, so--

**GUEST SPEAKER** Yes, so right now we have the joystick controlling so it has four directions. It is going up. Like  
2: that. We should plug this in first. Sorry.

**GUEST SPEAKER:** So we scrapped our goal to make a drone, because it just wouldn't work. So we just got all the pieces from our drone and then put it all together to make something else.

**GUEST SPEAKER** Yeah, so the basic science is the same. Like we used-- we didn't use the motor shield,  
2: because we have a motor driver, which is a chip that can control the propeller. So it's the same basic idea of how the drone works, and we want to use the joystick. This is to control the drone, as well, like up and down control the speed and left and right control the servo motor that is spinning underneath, which is our fan right now. So right now, I'll control the car. It now

is accelerating the fan. Sorry, decelerating. Yeah.

And then it's going back to the loop and going to the same speed now and then accelerates up. [INAUDIBLE] So now it's accelerating, right now. So if you want to turn a fan right now, just like-- OK, I guess the servo doesn't like-- it works this morning, but-- OK, so maybe-- Yeah. Sorry I didn't really make the thing work, but it actually does work-- just like an hour ago, as well. So we get the common sense of how a drone works, even we're maybe taking too much-- we were envisioning wanting to build a drone, but then realized that there's so much things need to consider. But the learning process teaches us how to build a drone, and we actually went to MITERS. Do you want to say?

**GUEST SPEAKER** OK, so we went to MITERS and then we showed them our original drone design, which is like--  
**1:** they looked at it and they were like, oh it's not going to work, because the motor driver can't take that much power to fly a drone. And then we need a really, really big battery to power the motors, and we didn't have the battery to supply the power in the first place. So they're just like, hey, we have some pieces of a drone lying around. You guys should put one together. So we put one together. Here it is.

**GUEST SPEAKER** Yes. Well the thing is, it is too big, so it's very hard to control it inside the room. You need a  
**2:** very big land of parking lot or like a grass land or something, so that you can actually fly it. So actually fly it, and this is the basic-- the transmitter they lent us to fly it. And so I will introduce this part. So these are the stronger, brush-less motors. They can actually spin, and unfortunately we break the propellers.

That is initially all, which is bigger than that. But we used our propellers, as well, to assemble to this part, and we reprogrammed the-- so people in the MITERS helped us reprogram the whole speed controllers and they get a really good flight controllers that can control the four motors over here, and let's see, actually. [INAUDIBLE] Can we make it into the fan? Like I will be really...

**GUEST SPEAKER** It can be like a something that cleans the floor.

**4:**