Radio Control Flyers Unlimited

Flight Plan

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Current News

The spring swap meet will be coming up. It is scheduled for Saturday, March 28, 2015. We will be having our monthly club meeting that day at the end of the swap meet (11:00 am) at the field.

The upcoming T34 pylon races was discussed at the February meeting. There will be lunch served on both days of each of the two scheduled events. For each event we will need 15 volunteers to help. This will include setup, help with the races itself, and people to help with the lunch. The races are scheduled to be May 30th 31st, 2015 and August 22nd 23rd, 2015.

As it would have it, the container was broken into and our riding mower was taken. The gate lock was cut for entry and the container lock was pulled off along with the doors. It appears that this was done by people knowing exactly what was at the field and knew when the field was not active. If there are any people coming to watch more than a few times and coming out when we use large or expensive pieces of equipment, we will need to keep an I on them and maybe tell the park to be alert.

On April 1, 2015 the club will start enforcing flyers to have their membership card and AMA card in view on their persons. We have plastic holders with clips for members that want them.

On the web site, we have a great poster from the FAA that summarizes the rules for flying model aircraft, including the multi engine drones and the FPV planes. In a nut shell, it states that if you do it for fun and are safe, then OK. You may not do it for profit, or non recreation activities.

The club has voted to have a glider event at the field. The members of the Modesto soaring club will be invited to use their large gliders to fly at the field. These gliders are towed up using powered model aircraft. There will still be open flying but on a very limited scale. This event will be held on May 2nd, Saturday at the field.

We are getting ideas to have the field repaved. It has been over 20 years and the pavement looks pretty bad. We would like to pave over the existing runway and use it as a base for the new asphalt. This would include sealing the old pavement with a petroleum mat to prevent water from going into the soil and disturbing the clay material in the soil. One idea for this project is to ask for people to loan the club monies for the purpose of financing the runway project. We currently have $20k that we can use for the project but will need more for this project.

PILOTS CORNER

Understanding The RC Quadrocopter / Multi Rotor from rchelicopterfun.com

The RC quadrocopter, also called the quadcopter, quadricopter, quad rotor RC helicopter, and the very incorrect Drone, all fall into the category of multi rotor RC which is fastest growing development in radio controlled vertical lift platforms that are able to take off vertically, hover, and fly in all directions. As the name suggests, there
There is no single large collective pitch rotor or tail rotor that we are all used to seeing on a conventional RC helicopter. These propellers are fixed pitch, two will spin clockwise and the other two will spin counter clockwise. By precisely and accurately spinning these four propellers at different speeds, all the common directional movements of a standard helicopter are attainable - Hover, for-

ward/backward movement, left/right movement, and yaw (turn rate) movement.

This makes the quad rotor and other multi rotor RC helicopters mechanically very simple with hardly any moving parts compared to conventional mechanically complex collective pitch and even fixed pitch RC helicopters. In most cases there are only 4 moving parts on the majority of quad rotor helis; the 4 spinning motor shafts which are directly connected to the 4 spinning propellers - that's it! This also makes quad and multi rotor RC helicopters very easy for enthusiasts to custom build their own machines. All that is needed is the frame, the motors, the ESC's, propellers, the receiver, and the electronic stabilization system, along with LiPo flight batteries of course...

There are certainly other incarnations of the multi rotor design using as little as 3 propellers arranged in a triangle configuration up to six arranged in a hexagonal configuration and even eight (Octocopters); but for ease of explanation, I will stick with the quadrotor variety as it is the most common and if you do end up getting this type of RC helicopter, most likely what you will be starting out with.

How Do Quads & Multi Rotor Work?

The reason RC quadrocopters and multi rotors are fairly new on the scene is the complex and rather heavy computing/processing power required to accurately control all the propellers to not only move the heli about, but to keep it stable. **Multi rotors are inherently unstable.** Only when all propellers are spinning at the exact same rate, producing equal amounts of thrust and torque, and experiencing equal amounts of drag is hover equilibrium achieved. Controlling this manually is all but impossible and only because of today's solid state gyro and accelerometer technology, efficient and fast responding brushless or coreless motors, coupled with small microprocessors to deal with the hundreds (even thousands) of calculations and control commands every second, can these things fly at all.

For those looking for the meat & potatoes of how this all works together to accuratly move and predict/calculate a multirotor aircraft's position (commonly using the Kalman Filter algorithm), here's a very is a good article on it.

When consumer available RC quadrocopters were first introduced a few years ago, they were not that performance minded as the emphasis was on easy going and super stable flight. Times have changed however and many are capable of performing some fairly aggressive aerobatic flight now. In fact, most decent quality hobby grade quads are aerobatic these days capable of performing heart pounding fast flips and rolls, yet can be put into easy stable flying mode/s as well for beginners. In these "easy" modes, the electronics onboard simply won't let the aircraft pitch or roll past a certain degree so they behave very similar to a super stable micro coaxial RC helicopter.

The latest and greatest generation of mid priced to high end quad rotors are now sporting GPS positioning and an array of other sensors. This gives them even more fully autonomous hands off flight control, way point assigned flight paths, and "return to home" capabilities if the radio link is lost. The level of electronic sophistication required to keep these things airborne is remarkable. They are in effect "aerial robots" since in actuality you are not flying them like a conventional RC helicopter or airplane. You are basically just telling them what to do and the electronics and programming are 100% responsible for the actual flying.

Does A Quadrocopter Make A Good First RC Heli?

Absolutely Yes! These make a wonderful first RC helicopter if you want the one of easiest flying experiences available to start with yet at the same time, have some aerobatic performance later on as your skills improve; provided you don't really care about true single rotor RC helicopter flight or flight characteristics. Quadrocopters for the most part appeal to a larger group of people who just want to fly something by radio control and don't necessarily care for a "real" conventional aircraft feel or look or perhaps just want one of the coolest and funnest flying gadg-

ets around. Likely why multi rotor is showing the strongest growth and popularity over all other types of RC aircraft right now.

Since mulit rotor RC helicopters are electronically complex, they were also very costly; but again as mass produced electronics and miniaturization becomes more and more common place, prices are dropping sharply. It wasn't that long ago if you could find one of these things for a thousand bucks you were doing good. With entry level hobby grade quadricopters built for the masses such as the Blade 350 QX for around $450, the Parrot AR Drone quadricopter for about $300, the Blade 180 QX for about $180, and the Blade mQX for about $120, the costs are always dropping and it just keeps getting better for beginners. You can be flying and flipping tiny palm sized quads such as the Traxxas QR-1 , UDI Micro Quadcopter , Hubsan X4 and my personal favorite palm sized quad, the Blade Nano QX all for under $100 bucks!

What are all these parts for? (from hobby king web site)

A brief explanation of what all the major parts do:

Frame - the structural component of your aircraft, keeping everything where it belongs. All of your components will be connected to your frame in some way.

Control board - the "brains" that keeps your aircraft steady in the air, and translates the pilot's commands into movement. It uses various sensors and a microprocessor to determine what your aircraft is doing, and makes adjustments to the aircraft's motor speeds to keep it controllable.

Radio receiver - Receives commands from the pilot's radio and relays them to the aircraft's control board.

Motor and propeller - create thrust and lift from stored electrical energy.

Electronic Speed Controller (ESC) - convert DC power from the battery to AC power to the motors. By varying the current and timing of electrical pulses, the speed of the motor can be changed.

Battery - the source of electrical power for all the other components. The size of the battery can vary widely, depending on the number of motors, the size of the motors, the weight of any payload and the flight time desired.

Cash Flow Report

Income		Expenses	
Club Revenue (including initiation fees, field assessment fees, Donations, and Events)	$2,225.00	Transfer to Savings	$5,000.00
		Newsletter	$113.30
		Misc Ex-	$58.16
		Portable Toilet	$140.00
Totals	$2,225.00		$5,311.46

Last Month's Total	$9,313.30
Income	$2,225.00
Expenses	($5,311.46)
Balance	$6,226.84

The March Club meeting is scheduled for:
Saturday, March 28, 2015 at 11:00 am
at the club flying field