

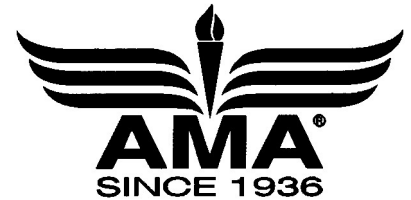
# The Seminole Flyer

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Charter member of the Academy  
of Model Aeronautics since 1969

AMA Charter Club 216



*50 Years of Responsible Model Aviation and Community Support*

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**October 2019 Issue**

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## ***Believe in a Cure Event***



**FSU/FAMU College of Engineering students who helped us  
celebrate our *Believe in a Cure* event**

The Seminole radio control club enjoyed another successful charity event this month. We raised \$651 for the Shands Children's Miracle Network. We want to extend a special thanks to members who donated money beyond the pilot, food purchase and the raf-

fles. A very special thank you goes to Rhett Boudreaux who donated in excess of \$200 for the cost of the food for the event so that all funds collected went to the charity. And, special thank you to Troy and Faith Emmett, Dolores Bush and Bill Ashbaker for

**See Event, Next Page**

## Event

From Previous Page

their special contributions. Because we will not write the final check to Shands CMN for at least another month, any member that wants to make an extra donation to the fund is welcome to give a check or cash to any of the club officers.

Several students from the FSU/FAMU College of Engineering made our event special by spending the day visiting with our members. You may recall that the students are competing in the 2020 SAE Aero Design Competition. Their challenge is to design build and fly a radio control aircraft. To make it more interesting, the RC airplane must be able to carry a full-size volleyball a specified distance. The students visited us to get "expert" advice because their project team members have little or no experience with radio control aircraft.

Our club members stepped up enthusiastically and provided much information on aircraft aerodynamics and design. Plus, Jeff Lawrence and Mike Atkinson spent the day engaged in flight training the students. Our club trainers provided a good workout.

Leah Evans, the project leader, became the newest member of our club. We expect to see her at the field every time she can get away from classes and books.

Finally, don't forget our November 10<sup>th</sup> Veterans Day Fun Fly event featuring our first pylon race of our winter race series as part of the festivities. As usual, there will be plenty of food, flying and fun outdoors in the beautiful fall flying season!

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# Time to Renew Club Membership

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It is the time of year to think about annual club dues. **Our 2020 club membership dues should be paid before the end of the year.**

All things that keep our field a nice place to fly are paid from membership dues. Dues are our only source of income and provide gas and maintenance for the mower, field repairs and improvements, insurance, electric bills, state and national fees and the list goes on.

Annual dues are: \$60.00 for general membership, \$75.00 for family membership and \$20.00 for junior membership. You may pay the treasurer at the field or at one of our club meetings. Or, you may mail a check to the Seminole RC Club at 2509 Napoleon Bonaparte Drive, Tallahassee, FL 32308.

Or, you may pay with PayPal. From PayPal home page:

1. Click the Money tab at the top of the page.
2. Click Send or request money on next page.
3. Enter [seminoleradiocontrolclub@gmail.com](mailto:seminoleradiocontrolclub@gmail.com) on next page.
4. Enter amount and click Change on next page.
5. Click Sending to a friend on next page.
6. Click Continue on next page.

We hope you will continue your club membership. We have a great hobby filled with fun and brief moments of sheer terror thrown in for excitement.

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# Newsletter Editor Wanted

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After several enjoyable years of producing the Florida Flyer, I must step back for several reasons. One key reason is that I know there are talented and creative individuals in our club who can take our newsletter to the next level of sophistication.

As I researched material for our club history, I read many past newsletters by people like Steve Warmath and Fred Schmidt who produced much more content than I have recently. They included profiles of club members, articles on new equipment and airplanes that members are bringing to the field, technology, building and flying techniques and more.

I have medical challenges that prevent me from being on the spot at the field as often as I should as newsletter editor.

If you feel you would enjoy the challenges and rewards of creating our club newsletter, please contact Jay Wiggins [moonangelb@gmail.com](mailto:moonangelb@gmail.com) or Bill Ashbaker [bill.ashbaker@comcast.net](mailto:bill.ashbaker@comcast.net)

I will be happy to provide support to the new editor if he/she wants it.

— Bill Ashbaker



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# Club Meeting News

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*Jeff Owens, Secretary*

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The meeting was called to order at 6:59 PM on Thursday October 17, 2019 by President Jay Wiggins. This meeting was held at the field due to the closing of the Beef O'Brady's location where we used to hold our meetings. 27 members were present.

**Member Recognition** – John McClellan for providing a survey transit to help layout the new field; Pylon Racing Committee (Marcy Driscoll, Troy Emmett, and Ed Budzyna) for proposing new rules and standards for the next round of racing; Jim Ogorek, Ed Budzyna, Theo Titus, and Steve McFadden for helping lay out the new field; Geoff Lawrence for drone photos of the new field; Jim Ogorek for becoming a Horizon Certified Flight Training Coach; Robin Driscoll for fixing the Pilot Station #1 sign; Jim Ogorek, Geoff Lawrence, and Dan Ouellet for helping the FAMU/FSU College of Engineering Flight Team; Jay Wiggins for all his many contributions to the Club; Rhett Boudreaux for contributing and cooking the food for the Believe in a Cure fundraising event; Jeff Owens for applying for the AMA Club Recognition Program for the Believe in a Cure Fly-in; Philip Stuart for his description of the Believe in a Cure event in his column in the Democrat; Chris Starnes for alerting the Club to the closing of Beef O'Brady's.

**Secretary's Report** – Jeff Owens – The minutes of the September meeting were posted on the web in the Newsletter. The minutes were approved as posted. Jeff has written a new "Frequently Asked Questions" handout for the Club. It will be posted on the web and copies made available to hand out at various events.

**Treasurer's Report** – Treasurer Bill Ashbaker gave the Treasurer's report. The report was approved.

**Safety Report** – Jim Ogorek - All is okay on the safety front. Keep up the good work! Jim has redone

the SRCC Facebook page. It is now open to the public. All members are encouraged to sign up!

**Training Report** – Geoff Lawrence – Geoff and Mike Atkinson did a lot of training at the Believe in a Cure Fly-in. Two trainers are ready to go.

**Field Report** – Jay Wiggins for Gordie Meade – the grass has been mowed. The recent rain has helped the grass considerably.

**Facilities Discussion** – Jay Wiggins – The grass on the new runway is starting to fill in nicely. A discussion was held about the field layout including the pavilion and pit areas. Several examples of pavilion designs were shown and will be discussed with the County. Ideas for a new container were also discussed. Suggestions will be provided to the County, but we have to wait for more guidance from the County as we do not know their design criteria.

**Old Business** – we need people to sign up for the Pylon Racing Series so that Marcy can make up the scoring grid. Jay will send out an email to describe the sign-up procedure.

**New Business** – We need a new meeting place!! A committee has been set up consisting of Steve McFadden (Chair), Robert Tilden, and Al London. Please send them your suggestions.

We were contacted to participate in a Scouting Family Day event on Saturday October 19 at the Wallwood Scout Camp. Jim Ogorek, Geoff Lawrence, and Jeff Owens agreed to participate. The coming tropical storm caused the event to be moved to Saturday November 16. We need some volunteers to help with a static display of some of our models.

The meeting was adjourned at 8:30 PM.



# Around the Field: Charity Event



Suspicious-looking gang



Theo and Troy were ready to give advice



Dan gives student expert advice on 3D printing



Jim is one of the student liaisons



Geoff spent much of the day training the FSU/FAMU engineering students for their SAE project



Dr. Mike helped with training

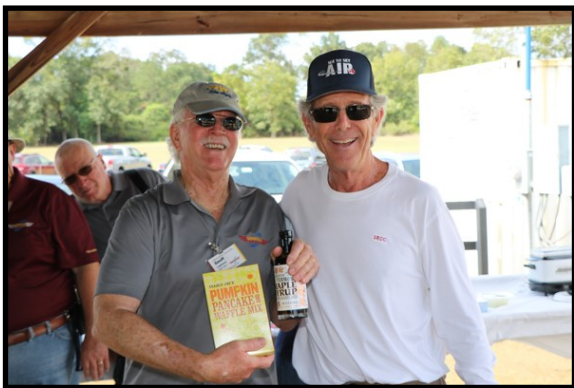


# Around the Field: Charity Event



Rhett receives his pylon race first place award from Jay

Marcy won second place in the summer pylon race series, but she decided it was better to be in Italy than be here to receive her prize. How can that be?



Geoff won third place



Leah takes a drone selfie



Rhett's charity raffle prize



Students won charity raffle prizes too



Dan's charity raffle prize

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# 3D Printing Basics

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*By Dan Ouellet 3D.DanoSoft.Com*

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I get asked this question a lot: What printer should I buy?

My answer always is: "It depends..."

Because it really depends on what you need or want to print. The important initial questions that must be answered before deciding on a printer are:

What type of objects will be printed? i.e.: miniatures, mechanical parts, vases, etc.

What will the objects be used for? i.e.: display items, functional parts, household items, etc.

What size will the object be? i.e.: 1", 6", 1', 2', 3', etc.

What quality must be achieved? i.e.: highly detailed figurines, shiny new, rough, etc.

What types of material will be printed? i.e.: PLA, ABS, Nylon, Wood, Metal, Resins, etc.

What is the budget? \$200, \$500, \$1,000, \$5,000, etc.

There are many more questions that should be asked, but at least these 6 will help to narrow the search down to the type, grade and quality of the printer to look for.

To help better understand how to interpret the answers to the above questions, I am writing a series of articles which will be published on a semi-regular basis, about 3D printing as it applies to the hobbyist today.

## 3D Printing Basics

### Part 1

My first step when dealing with a new technology, is to start with the background information necessary to gain the minimum understanding required to make an informed decision.

Therefore, this series of articles is meant to be a quick overview of 3D printing technology, where it came from, how it evolved so far, how it is used, what can be done with it, and introduce the subject specific applicable terminology, in order to assist the hobbyist to make informed decisions.

### What is 3D Printing

Additive manufacturing is the technology behind 3D printing. It implies making an object by gradually adding material where it is needed, until the part is complete.

This is very different from the traditional way of making an object. That is to begin with a block of some kind of material (stock) and remove the material that is not needed, until the part is done.

We all know that the traditional method wastes a lot of material. However, few of us realize that there are many shapes that are easy to print, yet they are difficult to make or cannot be produced the traditional way.

When it was first introduced, this difference was so important in manufacturing, that it was strongly protected with patents and made available only at a high premium to those that could afford it!

# *3D.DanoSoft.Com*

The RepRap (Replicating Rapid-prototyper) project was created around the turn of the century, after the relevant Additive Manufacturing patents expired, to create self-replicating open source machines that cost just a few hundred dollars and would be available to everyone.

As a result, today there is a plenitude of low-cost printers that can be purchased. Most are based on the RepRap machines or on other open source units that were derived from the project.

For a hobbyist, a 3D printer can be regarded as “just a different tool”, that is used to make the desired objects.

## 3D Printing Technologies

For hobby use, 3D printers are generally divided in two basic categories, based on how the objects are made:

**FDM (Fused Deposition Modeling):** Where the printed material, usually rolls or spools of filament, is extruded through a hot nozzle (melted) on a build plate.

**SLA (Stereolithography Apparatus):** Where the printing material is usually a photopolymer, typically a liquid resin, that is hardened by applying focused light on a build plate.

The main advantage of SLA is that it can produce parts at a much higher resolution than FDM; i.e.: very thin layers with fine detailed parts.

FDM on the other hand can build parts at a much faster rate with materials that are relatively inexpensive.

The main disadvantage of SLA is that, all the resins commonly available are highly toxic and must be handled with special care, in a well-ventilated environment. It is akin to using CA glue in large quantities; i.e.: do not let it touch your skin and do not inhale the vapors.

The main disadvantage of FDM is that, each type of material is printed using (sometime radically) different techniques to optimize the functionality of the parts; i.e.: the techniques that work for one type of material most likely will not for another type.

However, FDM materials (filament) are generally less costly than liquid resins and are much safer to use.

Please note that it takes some practice to master each of the different material you may want to use. But constant software improvements are making things easier as time goes by.

For our purpose, the rest of these articles will focus on FDM 3D Printing.

## CARTESIANS AND DELTAS

When considering FDM printers, the category is further subdivided into two types:



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Cartesian printers use simple geometry for their movement along the X, Y and Z Axis. They build the parts on a platform that moves on one of the Axis and a printing head (hot-end) which moves on the other two.

The printer to the right is an Original Prusa i3 MK2s that I purchased in late 2017. It has accumulated over 6,400 hours and printed 6 ½ miles of filament to date, with very little maintenance.

*Joseph Prusa developed the original “i3” (iteration 3) printer in 2012. It was a very successful design that significantly reduced the parts count needed to make a 3D printer. The MK2 introduced in 2016, quickly became the most successful 3D printer design in the world. In late 2017, the MK3, was introduced with major improvements in automation and usability.*

The main advantage of cartesian printers is that they are typically more accurate but are better suited to make squatty type objects.

Delta printers use more advanced mathematics (spherical trigonometry) to translate the X, Y and Z coordinates supplied by 3D CAD software and move their effector (a floating printing head) to a point in space within their build volume to make the part on a fixed platform.

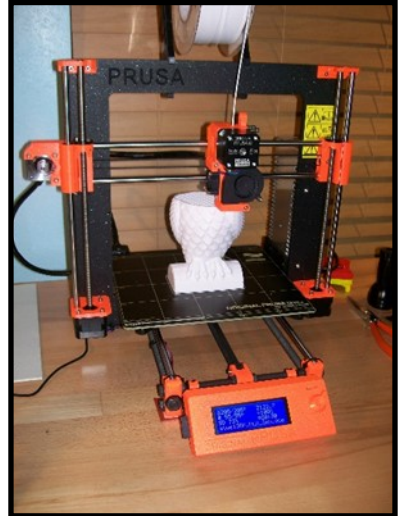
The main advantage of delta printers is that since the build platform is fixed, they can usually print faster than a cartesian printer, and they are adapt at making tall skinny objects.

The printer to the right is a second generation FLSun “QQ” delta printer based on the RepRap “Rostock” design. I purchased this printer in November 2018.

It took a while to get it going, but it is now my second go-to printer with close to 3,000 hours of print time.

Another popular delta printer design is the RepRap “Kossel”. It is similar to the “Rostock” with most of the differences located in the geometry of the effector.

When equipped with similar extruder/hot-end components, both the Cartesian and the Delta printers can print most common materials in use today.



## Heated vs Unheated Bed

Modern 3D printers are available with and without a heated bed.

The main difference is that, an FDM printer without a heated bed is basically restricted to only print with PLA filament.

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A heated bed allows the use of many other materials and helps a lot when printing PLA. If the parts are printed at the correct temperature, they stick well to the build plate while making the part and come off easily when the bed cools down afterwards. In some cases, the parts even pop off the build plate while it is cooling and getting close to room temperature.

No matter what type of FDM printer you decide on, I would strongly advise to only consider the ones that have a heated bed.

## Part 2

In the next installment, we will discuss the different types of extruders and hot-ends used by modern FDM printers as well as the filament that are normally used in the hobby.

## Useful links to Channels with relevant information and tutorials

**Maker's Muse – Angus Deveson – Industrial designer who strives to “Empower Creativity Through Technology”**

URL: <https://www.youtube.com/user/TheMakersMuse>

**Tom's 3D - Thomas Sanladerer – Covers new development in consumer and professional 3D printing.**

URL: <https://www.youtube.com/user/ThomasSanladerer>

URL: <https://toms3d.org>

**Prusa 3D – Joseph Prusa – Czech inventor responsible for many if not most of the improvements in low cost FDM printers**

URL: <https://www.youtube.com/user/prusajr>

URL: <https://www.prusa3d.com>

*Scroll down the page and download the “Basics of 3D Printing E-Book”*

## Other links

**RepRap Machines – Most common RepRap 3D printer models created for different purposes**

URL: [https://reprap.org/wiki/RepRap\\_Machines](https://reprap.org/wiki/RepRap_Machines)

**Yeggi – A great search engine of 3D printable models**

URL: <https://www.yeggi.com>

## The online store for the objects that I design

URL: <https://www.myminifactory.com/users/DanoSoft>

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# Seminole Radio Control Club

## Tallahassee, Florida

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### Officers

<b>President</b>	Jay Wiggins <a href="mailto:moonangelb@gmail.com">moonangelb@gmail.com</a>
<b>Vice President</b>	Rhett Boudreaux <a href="mailto:geobatch@aol.com">geobatch@aol.com</a>
<b>Secretary</b>	Jeff Owens <a href="mailto:jfolso@comcast.net">jfolso@comcast.net</a>
<b>Treasurer</b>	Bill Ashbaker <a href="mailto:bill.ashbaker@comcast.net">bill.ashbaker@comcast.net</a>
<b>Field Safety Officer</b>	Jim Ogorek <a href="mailto:jim.ogorek@yahoo.com">jim.ogorek@yahoo.com</a>
<b>Field Marshal</b>	Gordie Meade <a href="mailto:lmeade@fsu.edu">lmeade@fsu.edu</a>
<b>Training Coordinator</b>	Geoff Lawrence <a href="mailto:k4nkc@comcast.net">k4nkc@comcast.net</a>

### Media Managers

<b>Web Master</b>	Jeff Owens <a href="mailto:jfolso@comcast.net">jfolso@comcast.net</a>
<b>Newsletter Editor &amp; Publisher</b>	Bill Ashbaker <a href="mailto:bill.ashbaker@comcast.net">bill.ashbaker@comcast.net</a>

### Flight Training

Primary flight training is available by appointment on Saturdays from 10:00 am until 2:00 pm when the weather is nice and not too breezy. Contact the Training Coordinator or one of the instructors to make an appointment:

Geoff Lawrence 850-591-6879  
Jeff Owens 850-545-7482  
Bill Ashbaker 850-656-5932

Jim Ogorek 850-766-2477  
Mike Atkinson (Tuesday Only) 850-251-2694  
Troy Emmett (Large Aircraft) 770-546-6199

### Field Hours

<b>Electrics/Sailplanes</b>	30 minutes before sunrise until 30 minutes after sunset 7 days/week
<b>Gassers/Nitros</b>	10:00 AM until 30 minutes after sunset except Sunday. Sunday gasser/nitro flying begins at 12:00 PM. All gassers and nitros must have a suitable muffler.

*The Seminole Flyer* is a publication of the Seminole Radio Control Club of Tallahassee, Florida. We welcome and encourage items for publishing in *The Seminole Flyer*. Please submit your suggestions to [SeminoleRadioControlClub@gmail.com](mailto:SeminoleRadioControlClub@gmail.com) in Word format. Thank You.

**[www.seminolerc.com](http://www.seminolerc.com)**