Subject: Flexibility of WSF
Posted by NormL on Fri, 18 Jan 2013 21:58:39 GMT
View Forum Message <> Reply to Message

I have been printing a model of the frame of my track car an Ariel Atom 2. On the latest installment, of two, I tried to create a spring printed in WSF to hold energy. Yeah, kind of a goofy goal. In the first print I had some success getting it to print with rolling wheels (OK, that was very easy), suspension and steering. This is a 1/24th scale model so the gaps required by the printing being 0.5 mm equate to 12 mm real which is a chunk as it multiplies across the suspension and steering. Anyway I changed the suspension from the first print to more solid mountings to avoid the numerous "gaps". the shocks did work on the first print, but, there was way too much joint slop to use them. The second print does have nicely working suspension although the right rear shock seems to still be full of powder. Of course all of the wheels need to be broken free of the powder on arrival.

The spring that was supposed to store energy does work, ... actually a little too well. The load design failed as the two shafts need more support or support between themselves, so, basically you have to load the system by hand turning the big gear. It is already fighting you hard before it ever reach the stop and I am afraid to turn it that far yet. There is no shortage of turning force it is giving back though. The wobbly driving shaft makes it not transmit though it just sits in binding. I can make the next one work, I have know doubt of that. WSF is very tough!

Of course I know I could print this as a snap together, but, I am quite focused upon printing fully functional right out of the zip lock bag. I have suspension and rolling, I am fairly sure I can get the spring system to work, now I have to figure steering out as it is more of a direction suggestion system at the moment.

A quick synopsis of how I got here:

3D scan of the car with a Leica 6200 phased based scanner. Modeled the frame in a software package called Cyclone and imported it into Inventor. This was actually done quite a while ago. Simple YouTube vid http://www.youtube.com/watch?v=MngPa7EJ14U

I then scaled the frame 0.041666666666666666666666 to convert it to 1/24 scale and make it 3D printable.

Test mule no. 1.

This had a few issues that lead to the next iteration that I received today.

Test mule no. 2

http://www.youtube.com/watch?v=Q-lcgn1THKQ

I guess there is no real point to my post other than WSF is flexible and you can print to have working stuff taking advantage of that flexibility. Just real a very cool material.

Subject: Re: Flexibility of WSF
Posted by Youknowwho4eva on Tue, 22 Jan 2013 15:31:17 GMT
View Forum Message <> Reply to Message

That is really cool! Can't wait to see the final. Thank you for the great assessment of the material!

Subject: Re: Flexibility of WSF
Posted by NormL on Tue, 22 Jan 2013 17:30:17 GMT
View Forum Message <> Reply to Message

Thanks for the feedback Michael.

I have been looking at the steering system too traditionally, ... me thinks. This can be done, but, I have to get out of the "joint" way of thinking and concentrate more on making a solid that can flex 30Â° or more in two directions and stay within the wheel..

Subject: Re: Flexibility of WSF
Posted by NormL on Fri, 08 Feb 2013 03:46:36 GMT
View Forum Message <> Reply to Message

Got the new prints today and sorry, ... the jack is way cooler than the Atom. I printed the jack as a goof, cause it was cheap and it was something to put with the Atom, but, ... it works. This thing is just so small and all the wheels rotate and the the back ones spin and it go up and down and it holds the car up and the lift plate spins and the lift plate stays level as the jack goes up and my thumb is at least eight times its size.

The 1/24th scale Atom frame is done. It now has working suspension, the ability to roll and working steering. I am very pleased with it, it just loses the spot light to the friggin jack. The energy spring is still not functional, OK it works, but, the release mechanism is not achievable and there is still too much binding between shafts. I am going to be completely absorbed with work and movement on some full sized CNC's and prints, so, I am done with this for a while.

These are not something to give a child as they will break, they are for adult children.