

ThumbSat Progress

Things have been progressing quite nicely in the world of ThumbSat, and March and April saw the successful achievement of several major milestones for both ThumbSat and ThumbNet!

The manufacturing lab in Tijuana, Mexico is now fully operational and capable of producing circuit boards for ThumbSat satellites, as well as electronic subsystems such as radio transmission boards, customer specific payloads, or our new ThumbNet dongles.

Be sure to click on the link in the sidebar to watch the pick and place machine in action, building radio transmission boards!

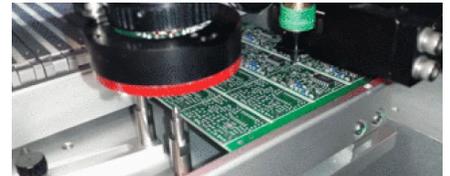
We were also able to complete the manufacture of the first set of Qualification and Flight model boards of ThumbSat in April, and in a sense, they are already traveling around the planet. Some of the boards that were manufactured and assembled near the Southwestern U.S. / Mexico border have been sent to our partner in Taiwan for GPS antenna tuning specific to the layout and size of ThumbSat, while others have traveled to the U.K. and Lithuania for functional and operational testing by our engineering team.

Space qualification of the flight hardware, which includes thermal and vibration testing, in addition to vacuum and radiation tests, is underway, and we are excited to be preparing to deliver the satellites to the launch provider within the next couple months.

It's an exciting and busy time for everyone!

Our Pick and Place Machine doing what it does best!

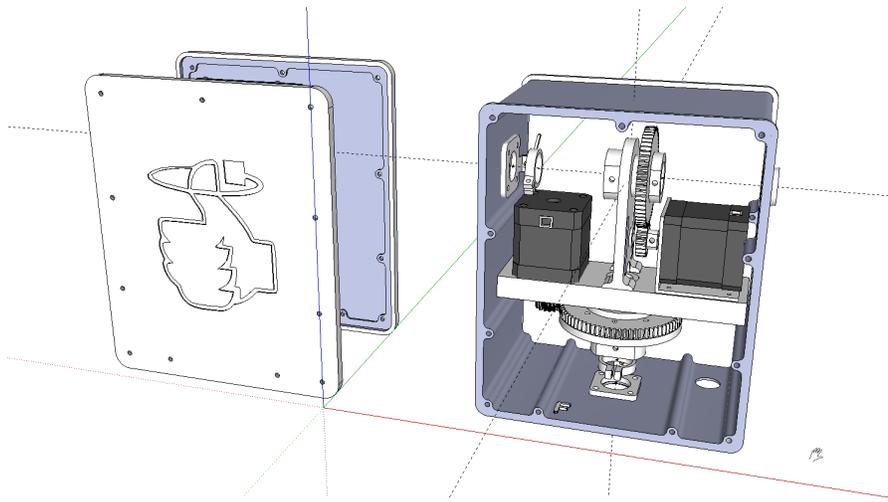
Check it out [here](#):



Fully populated ThumbSat, ready for testing!

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Screen Capture of the Design of ThumbPointer v1.2

ThumbPointer is Getting an Overhaul!

We're firm believers in releasing, testing and then improving all parts of the ThumbSat universe. We've released drawings and procedures for a couple versions of the ThumbPointer tracking station already, and the month of May should see the release of version 2.1.

We've listened to the feedback from the folks that have already built the ThumbPointer, and with our own engineering notes, we've seen areas that need improvement such as better resistance to back driving the gears or stability in a windy environment.

Improvements in version 2 will see the replacement of the spur gears currently being used with worm gears that will provide better gear ratios and far more resistance to unwanted movement in the drive train. Additionally, most parts have been redesigned to be a bit more robust to withstand wind loads, while others have been hollowed out or trimmed down to reduce rotating mass.

And of course, electronics systems are continuously being evaluated to reduce cost and improve functionality. ThumbSat is finalizing an entirely new circuit for the Software Defined Radio (SDR) receiver in use with ThumbNet, that will show dramatic improvements in sensitivity, stability and user configuration. Keep an eye on the [ThumbStore](#) and order yours as soon as they become available!

It's a fine line between performance and reliability and we will continue to listen to the advice of the ThumbNet community as they put ThumbPointer into operation in real world locations.

If you have comments or questions on any aspect of ThumbSat, visit the [Forum](#) and share them with others, or contact us directly at comms@thumbsat.com.

They say a picture is worth a 1000 words!

Stop by our website's newly added [gallery](#)! Here we post progress pictures of ThumbSat and ThumbNet stations!

Check out what [Discovery.com](#) had to say about ThumbSat:



Wrap yourself in a fantastic ThumbNet tee-shirt by shopping the store [here](#)!



Escola Americana do Rio de Janeiro

We reached out to Mary Sa at Escola Americana do Rio de Janeiro in Brazil in mid-2015 to participate in ThumbNet. She was happy to join the project and eager to have her students get started. She teaches an elective Astronomy class who were very excited at the opportunity!

Unfortunately, IT issues at the school prevented them from starting until recently. With patience and perseverance on their side, they are finally up and running!

Thank you for participating in ThumbNet!



Our ThumbNet volunteers at Escola Americana do Rio de Janeiro, Brazil!

How Could ThumbNet Benefit Your School?

The benefit to your school will be an additional tool in your curriculum that can be used to help generate interest in your students about topics that they might not normally find interest in, such as math, physics, radio technology, engineering, and space.

Additionally, the school should benefit from the collaboration with other schools around the world, who are also participating in the ThumbNet project. We strongly encourage active participants to communicate via our [Forum](#). This is a great way to share with the community your experience with building your station that just might assist others in building theirs!

Examples of how the school might promote learning new ideas would be for the students to experiment with building different style antennas for the station and comparing them for sensitivity. This would promote logic, math, radio concepts, and mechanical assembly skills.

The students may decide that they want to listen to and record the astronaut communications on the International Space Station thereby teaching lessons on audio or signal processing and language.

They then might download the data from orbiting weather satellites in real time and would be learning about meteorology, radio frequency polarization, and global imaging.

Or they simply try to listen to other ground based transmitters.

The fun comes from getting the students experimenting!

Learn more about ThumbNet [here](#)!

ThumbNet Volunteer Receives STEM Scholarship!

Remember our ThumbNet volunteer Danny Hovanec who was highlighted in our December 2015 [newsletter](#)? He was recently featured in his local Pennsylvania hometown [magazine](#)! He also received a STEM scholarship, which you can read about on p29 of the same magazine. Danny has had a busy school year! Not only is he taking five AP classes, he will be giving a presentation at the end of April regarding his involvement in ThumbNet. His presentation will be done via power point and will include Citizen Science, ThumbNet, and how he built his station and made it operational. All that while getting ready for graduation and preparing for college!

ThumbSat would like to congratulate Danny on his success and thank him for his continued support of ThumbNet during such a busy time!



ThumbSat: Unlocking Space for Everyone!

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