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SGAC GLOBAL SATELLITE TRACKING INITIATIVE

Abstract

The Global Satellite Tracking Initiative aims to facilitate students and young professionals to set up ground stations to download real-time data and images from satellites flying above their regions. The objective is to empower and build capacities among space enthusiasts around the world and to promote the space sector through hands-on activities and real space technologies related to satellite communications.

The Space Generation Advisory Council (SGAC) together with SatNOGS as an integral part of the Libre Space Foundation, have been supporting the initiative to enhance the development of a global open source network of satellite ground stations. Through the Global Satellite Tracking Initiative, SGAC and its partners will be providing all the resources, hardware, and know-how that is needed to set up several ground stations. A competition was launched by the end of 2021 to select teams of space enthusiasts that have been then supplied with a kit and step-by-step instructions on how to build their own ground stations around the world.

By setting up ground stations in backyards, local universities, or maker clubs, teams are not only self-learning about telecommunications and satellite technologies, but they are creating a meaningful impact in their local communities, bringing the broad society closer to STEM fields and in particular, space. The initiative also intends to support different space missions while engaging local communities from different regions around the world in the space sector through appealing imagery and tools.

After closing the Call for Applications, 10 winning teams were selected upon receiving almost 200 applications from more than 60 countries. The selected winners are based in the following space emerging countries: Benin, Bolivia, Egypt, Ethiopia, Nepal, Peru, Philippines, Rwanda, Vietnam, and Zimbabwe. They have been receiving a basic Ground Station Kit and instructions on how to receive live images and data from different space missions starting with the following frequency bands:

-137MHz: To receive images from NOAA satellites. -144-146MHz: To receive images and data from the ISS. -440MHz: To receive data from numerous scientific and educational small satellites.

The successful winning teams that manage to set up the basic ground station kits with the Software Defined Radios (SDR) and conduct some outreach and educational activities, will receive a more advanced antenna system. This paper captures the process followed by the selected teams, from the unboxing of the hardware to the reception and processing of data from operational space missions.