AMATEUR RADIO REPEATER

BASIC CONCEPT OF PAYLOAD

The amateur radio community across the world like to talk to each other via radiocommunications. One of the methods this works is by using amateur radio repeater. In amateur radio repeater, when one transmits a particular FM signal to the satellite at a particular frequency, then the satellite retransmits the signal it receives after amplification at different frequency.

APPLICATION/NEED OF THE PAYLOAD

The amateur radio repeaters are ways by which hams verify their rigs and also get a chance to contact more people at a frequency higher than HF band. Upto HF, signals sent towards sky get bounced off from there, but it does not happen when one transmits at more higher and popular bands in VHF and UHF. Hence, a repeater will help them achieve distance of communication much higher than the line of sight of the rig.

For the project, this would also help us establish a good system for uplink, as design would be made so as to receive uplink easily.

FAVORABLE POINTS

The payload is simple to achieve and there have been many satellites who have had similar payloads. Because of already existing satellites, availability of components etc were not going to be an issue as some teams have already procured such setups for the payload.

Like TEC, this is also communication based-payload and will not require any special apparatus for itself.

ANALYSIS

The analysis involved looking into multiple satellites which had similar payloads. We looked into multiple satellites' communication system. It was tough to find system corresponding to repeater part as generally this payload was a part of other payloads. It was found that majority of the permutations and combinations of repeating satellites were also made and very few choices remained.

REASON FOR REJECTION

One of the major reasons behind rejection was that it did not get that support from the team. Though, this might sound as a weird reason to reject a payload, it is a very valid reason as well. The project is there so long as the students working on it are enthusiastic to work on it. The second reason for rejection is the proposal of a better version of the payload: SSTV Radio transmission, which has become the payload of Advitiy.

LESSONS LEARNT

The team's enthusiasm towards a particular payload is important. Also, a better idea can come from a rejected payload idea.

TIPS

It is highly suggested that the complete team is of one mind when it comes to selection of payload. Do not leave a particular payload idea as it is if one finds it too complex. It might be possible that you get better ideas from that payload idea.

SUMMARY OF THE PROBLEMS

The payload of amateur radio repeater was rejected because of 2 reasons 1) It did not garner enough enthusiasm from the team 2) A better payload idea was found by team: SSTV Radio, which came to be known as the payload of Advitiy.