



NavIC MESSAGING RECEIVER

Navigation using Indian Constellation (NavIC) is a satellite constellation developed by Indian Space Research Organisation (ISRO) with a coverage area of 1,500 km around the Indian main land. This satellite constellation is designed primarily for regional navigation services. In addition to its primary functionality, NavIC allows broadcasting of short messages; such messages could be for alerts, forecast and warnings on impending natural disasters like floods, cyclones, landslides, earthquakes, tsunami, etc., and dangers for the safety of life in areas with poor or no communication infrastructure. The receiver is conceptualized and developed by Space Applications Centre (SAC) of ISRO for reception and display of such messages.

The receiver transmits raw data over Bluetooth link. An application running on a smart device like mobile phone or tablet having Bluetooth connectivity can decode and display the messages for users. This receiver is designed as battery-operated low power device.

The prototype hardware developed by SAC can also be used by fishermen, for marine applications in deep sea.

Salient Features

- Provides positioning along with messaging.
- In addition to the NavIC chipset, the device uses ATmega328P microcontroller and HC-05 Bluetooth (BT) module.
- The controller provides configuration for chipset and BT module. Microcontroller acts as an interface between chipset and BT. The TPS73633DBVT LDO converts 5V to 3.3 V.
- Designed to draw power from battery or power bank. power consumption of the receiver is ~100 mA @ 5V.



Salient Features

- Receiver works for ~4 days using a 10000 mAh power bank.
- All data from NavIC receiver is passed over BT to mobile
- Power saving is envisaged to be achieved by filtering out the messages in microcontroller and pass only needed messages to the mobile application.
- Currently, the size of the receiver (PCB) is 41 mm x 46 mm; with enhances features, it would be 70mm x 50 mm.
- Receiver has been developed, tested, demonstrated and delivered to a number of end-users.
- An Android application is also developed to display the messages on mobile phone/ tablet.
- In addition, the messages broadcasted by Indian National Centre for Ocean Services (INCOIS) of Ministry of Earth Sciences (MoES) can also be received using this application.

Technology Transfer

SAC/ISRO offers to transfer this technology of the **NavIC Messaging Receiver** developed by SAC to industries in India with adequate experience and facilities. The industry would be expected to fabricate the receiver PCB and design packaging including all the components mentioned above, and, the package has to be IP67 compliant. The option of using power-bank or some rechargeable battery would be the discretion of the industry. Enterprises interested in obtaining knowhow may write giving details of their present activities, infrastructure and facilities.

Technology Transfer & Industry Interface Division (TTID), PPG
Space Applications Centre (SAC), ISRO, Ambawadi Vistar,
Ahmedabad - 380 015
Email: ttid@sac.isro.gov.in
Fax: 079-26915817
https://www.sac.gov.in/SAC_Industry_Portal

