



NavIC Outreach and Information Dissemination Activities

Working Group – C

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Indian Space Research Organization (ISRO)

10th December 2019

ICG-14, Bengaluru

- **Student hackathons**
- **Evaluation boards**
- **User-industry meets**
- **Societal outreach**
- **Summary**



STUDENT HACKATHONS

SMART INDIA HACKATHON

- **Initiative for students**
- **Ministry of Human Resources Development, Government of India**
- **Platform to solve pressing problems of daily lives**
- **Culture of product innovation and problem solving**
- **www.sih.gov.in**

- **Smart communication**
- **Agriculture and rural development**
- **Food technology**
- **Waste management**
- **Renewable energy**
- **Healthcare and biomedical devices**
- **Smart vehicles**
- **Robotics and drones**
- **Clean water**
- **Security and surveillance**
- **Miscellaneous**

FINALE ORGANIZED BY SAC-ISRO



- **2nd and 3rd March 2019**
- **Sivananda Ashram, Ahmedabad**
- **36 hour non-stop**

PROBLEM STATEMENTS

- **Seamless indoor-outdoor navigation**
 - **Fusion of technologies (GNSS, Wi-Fi, BLE, etc.)**
 - **Enable seamless indoor-outdoor positioning**
- **Autonomous ephemeris prediction by navigation receivers**
 - **Utilize previous ephemeris data**
 - **Intelligently predict current ephemeris**
- **GAGAN on mobile**
 - **Improve accuracy and integrity**
- **Messaging feature of NavIC**
 - **Novelty in application**

GLIMPSE



SAHYADRI HACKATHON

- **Initiative for students**
- **Organized in collaboration with Sahyadri University, Mangaluru, Karnataka**
- **20th to 22nd Sept, 2019**
- **Platform to develop new applications using NavIC**
- **Provide head-start to students in NavIC technologies**

HARDWARE PROVIDED

- **NavIC messaging receiver**
 - **Bluetooth interface**
- **Vehicle tracking device**
 - **GSM interface**
- **Development board**
 - **UART interface**

OPEN PROBLEMS

- **Road transport**
- **Aviation**
- **Shipping**
- **Rail transport**
- **Security**
- **Heavy vehicle guidance**
- **Surveying**
- **Geodesy**
- **Telecommunications**
- **Financial services**
- **Tourism**



- **26 teams**
- **Students could operate the NavIC hardware and prepare a data-server also within the limited time**
- **Winning proposal: Smart-city app, where fire, policing, garbage, etc. integrated in two apps – (i) citizens and (ii) officials**

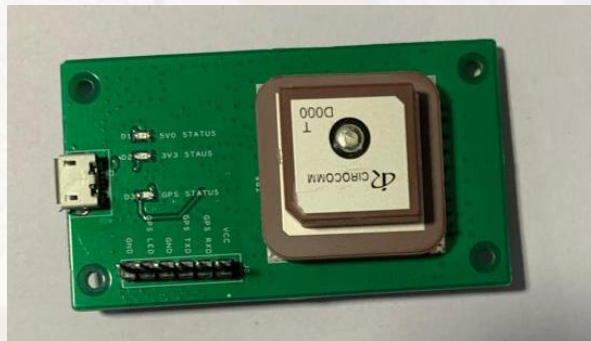
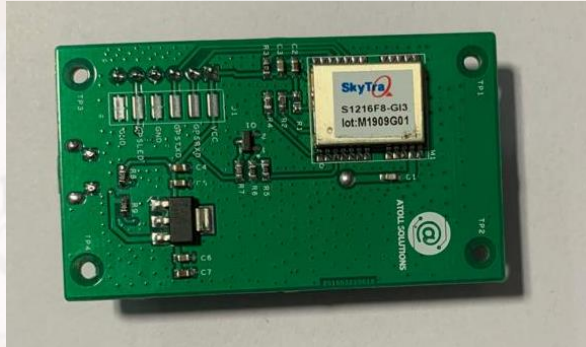


EVALUATION BOARDS

GENESIS

- **Idea provided by a young start-up in NavIC user-industry meet organized by ISRO in Sept. 2018**
- **Objective: to facilitate rapid prototyping of NavIC receivers in academia and SMEs**

BOARDS DEVELOPED





USER-INDUSTRY MEETS

USER-INDUSTRY MEET

- **ISRO organized NavIC user-industry meet at ISRO-HQ, Bengaluru in Sept. 2018**
- **75 agencies from user segment and industry participated**
- **2 days of discussions, culminating in brainstorming session**
- **Recommendations served as basis for finalizing roadmap for future NavIC**

INDUSTRY MEET

- **Federation of Chambers of Commerce and Industry (FICCI) organized NavIC industry meet at NIAS, Bengaluru in May 2019**
- **25 industries participated**
- **Constructive suggestions received**
- **Need emphasized for expanding reach of NavIC applications to neighbouring countries as well**



SOCIETAL OUTREACH



- **Hon. Prime Minister visited ISRO pavilion at VGS-2019**
- **Associate Director-SAC Shri Niles Desai showcasing the NavIC in mobile application**

GLIMPSES AT VGS-2019



SAARC OUTREACH



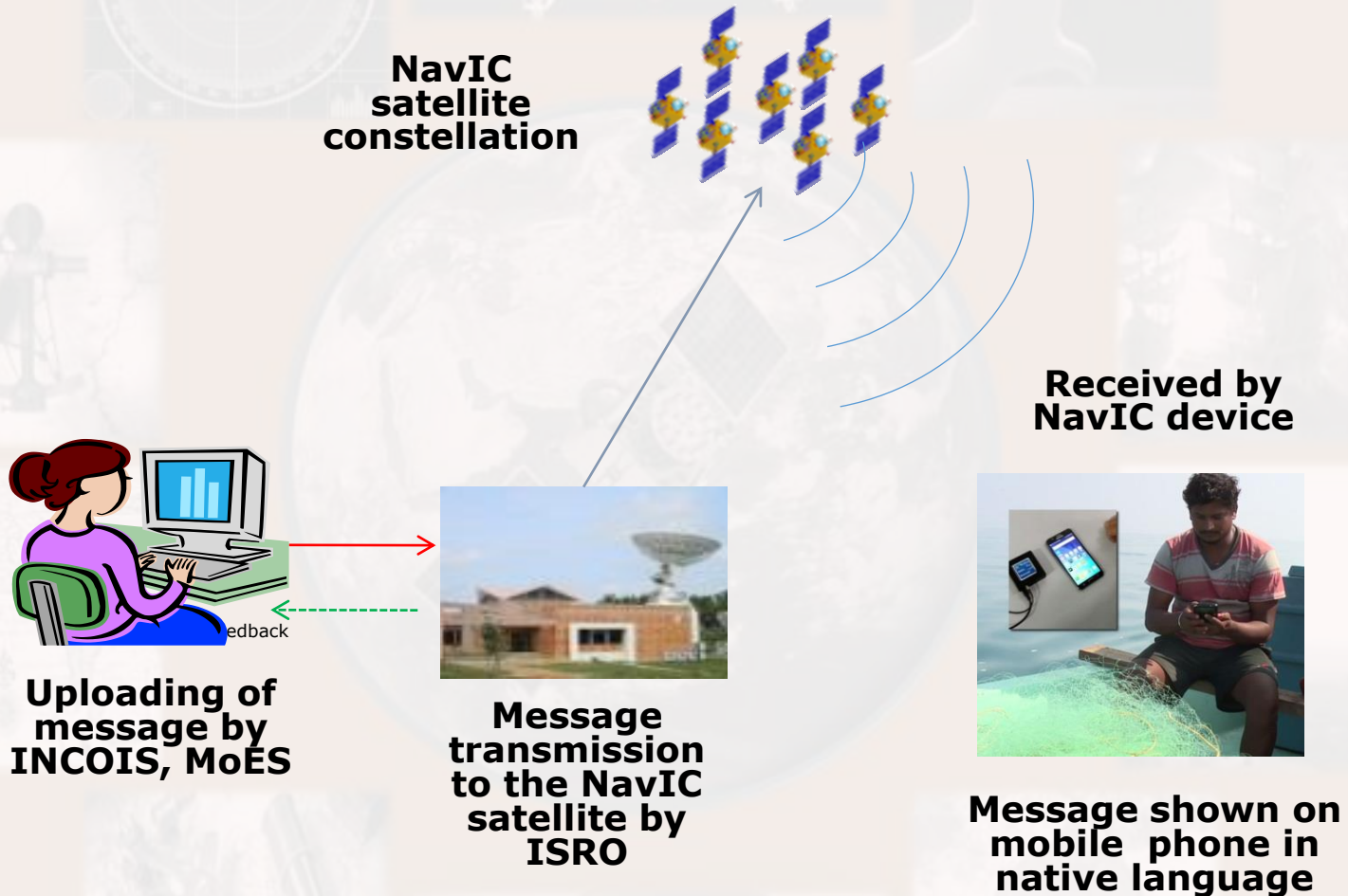
- **Demonstration of NavIC technologies to SAARC countries**
- **Dec 2018, Gandhinagar**

FISHERMEN OUTREACH



- **Demonstration of NavIC messaging receivers to fishermen community**
- **Benefits: Disaster alerts (cyclones, tsunami, high sea waves), geo-fencing, potential fishing zone information**

MESSAGING SERVICE ARCHITECTURE





SUMMARY

NavIC OUTREACH AND INFORMATION DISSEMINATION

- **Actively pursuing both outreach and information dissemination activities**
- **Keen to have industry and academia develop innovative techniques and applications leveraging NavIC**
- **Supports efforts in this direction**

