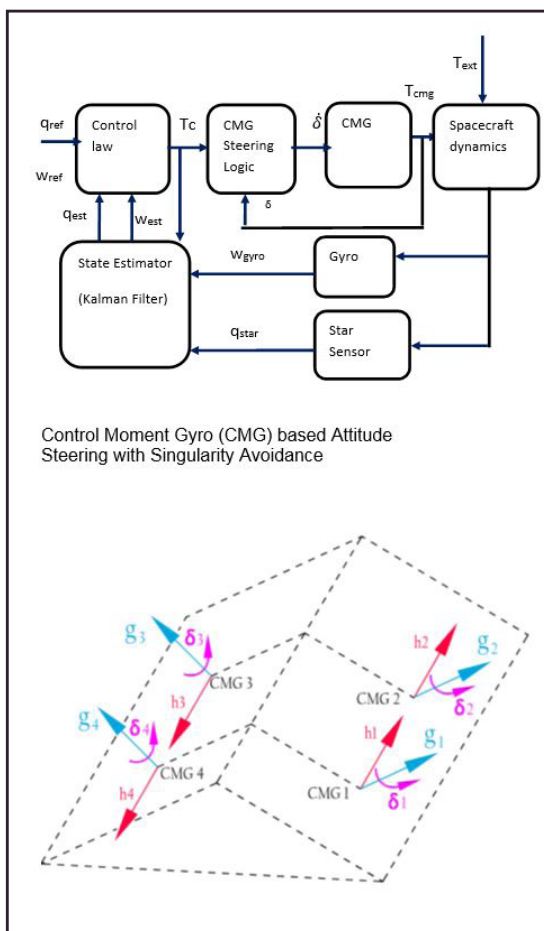


## Control Moment Gyroscope based Attitude Steering with Singularity Avoidance

U R Rao Satellite Centre (URSC) of Indian Space Research Organisation (ISRO) has developed Control Moment Gyroscope (CMG) based Attitude Steering algorithm with Singularity Avoidance.



### Salient Features

- ✦ Improved image collection up to 30 spots.
- ✦ Gimbal Rate / Wheel Spin Rate Control mode to meet both agility and stability.
- ✦ Seamless transition between two modes based on the torque demand.
- ✦ This algorithm has been successfully demonstrated.

### Major Specifications

- ✦ Agility :  $4^\circ/\text{s}$  rate and  $0.6^\circ/\text{s}^2$  acceleration
- ✦ Control Error :  $0.01^\circ (3\sigma)$
- ✦ Stability :  $0.0001^\circ/\text{s} (3\sigma)$

## Technology Transfer

URSC/ISRO offers to transfer this technology of Control Moment Gyroscope (CMG) based Attitude Steering algorithm with Singularity Avoidance to industries in India with adequate experience and facilities. Industries interested in obtaining knowhow may write giving details of their present activities, infrastructure and facilities.

Technology Transfer & Industry Coordination Division (TTID),  
Programme Planning and Evaluation Group (PPEG),

📍 U R Rao Satellite Centre (URSC), ISRO, HAL Airport Road,  
Vimanapura Post, Bangalore – 560 017.

✉ Email-id: [tt-icd@ursc.gov.in](mailto:tt-icd@ursc.gov.in)

☎ Fax No: 080-25205261

🌐 <https://www.ursc.gov.in/industry/index.jsp>