

Air Quality Monitoring System(AQMS), SMDP C2SD

Funding agency- MEITY, Govt of India

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OBJECTIVE:

- ❖ Development of a low cost, portable air quality monitoring system based on FPGA/ASIC platform which will detect and measure the pollutant gases like CO₂, CO, NO₂ along with temperature and humidity. A joint project with 6 NITs from North East India.

DELIVERABLES:

- Portable, low cost and energy efficient AQMS.
- Manpower generation in different areas like gas sensor calibration & testing, ASIC design using EDA tools, device fabrication technologies, etc.
- Knowledge and expertise transfer by interaction/visit with national/international scientists.

SOCIAL IMPACT:

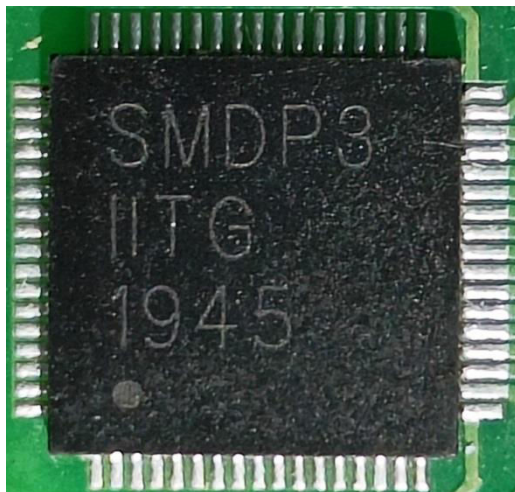
- Aid to the people to know about the quality of air they breathe
- Aid in data collection of the concentration of pollutant gases
- Obtaining accurate AQI levels wherever the system is deployed
- Enabling health measures/precautions based on the data collected by AQMS

OUTCOMES:

- A TSMC 180nm ASIC has been designed fabricated, tested and integrated with the AQMS Circuit.
- Another ASIC in SCL 180nm is also designed and submitted to SCL for fabrication.
- A 3 board AQMS is developed using COTS and tested.
- Finally a single board AQMS is developed and tested using TSMC Chip

CURRENT STATUS:

- Three different working versions of AQMS has been tested.
- Calibration for different gases has been performed at Centre for Nanotechnology, IITG.
- Data Collection is done wirelessly using Zig Bee and Bluetooth.
- Checking our data with that of Assam Pollution Control Board.



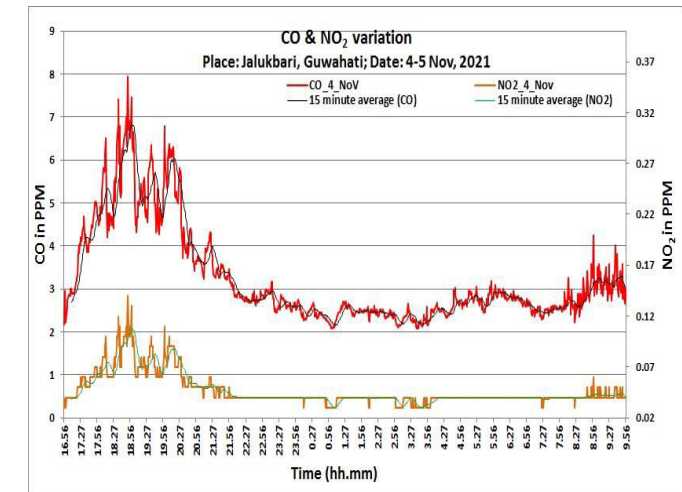
Fabricated TSMC Chip



3 Boards AQMS



Single Board AQMS



Recorded CO and NO₂