Brief Resume

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1. Name : Dr Gundra Satheesh Reddy

2. Designation : Scientific Adviser to Raksha Mantri,
Ministry of Defence, Govt of India
Former Secretary, Dept of Defence R&D and
Chairman, DRDO and former
Director General, Aeronautical Development Agency (ADA)

5. Academic Qualifications

S.No.	Degree	University	Year
1 .	B.Tech Electronics & Commn Engg (ECE)	Jawaharlal Nehru Technological University (JNTU), Anantapur	1984
2 .	MS by Research (ECE)	JNTU, Hyderabad	2009
3.	PhD (ECE)	JNTU, Hyderabad	2014

6. Significant ranks/appointments

S.No.	Appointments	Year/Date
1	Scientific Advisor to Raksha Mantri (SA to RM)	Aug 2022
2	Secretary DDR&D, Chairman DRDO & DG, ADA	Aug 2018
3	DS & Director General, Missiles and Strategic Systems	Jul 2016
4	Distinguished Scientist (DS)	Sep 2014
5	OS & Director, Research Centre Imarat (RCI)	May 2013
6	Outstanding Scientist (OS)/Scientist H	Sep 2011
7	Scientist B to Scientist G	Jul 1986 to Aug 2011

7. Major professional accomplishments

Dr Satheesh Reddy, a renowned defence and aerospace scientist, acclaimed for his significant contributions to Defence R&D and technology leadership spanning several decades. A visionary, Dr Reddy was instrumental in formulation of many progressive policies, strategies & initiatives for strengthening defence R&D eco-system in India.

He joined Defence Research and Development Laboratory (DRDL) in the year 1986 and subsequently joined Research Centre Imarat (RCI), the brain child of Dr Kalam, after its formation. He started his journey as a young navigation engineer and later as Technology Director developing many inertial sensors and diversified hybrid navigation systems making India self-reliant in navigation technologies. As Project Director, he developed the India's first guided bomb paving way for indigenous development of long range smart precision weapons.

He spearheaded the development of advanced avionics as Director, Research Centre Imarat (RCI) and headed Dr APJ Abdul Kalam Missile Complex as Director General, Missiles and Strategic Systems.

During his illustrious career, he held many prestigious appointments in Government of India as the Secretary Department of Defence R&D, Chairman, Defence Research and Development Organisation (DRDO), Director General, Aeronautical Development Agency (ADA) & the Scientific Adviser to Raksha Mantri (SA to RM).

His notable contributions and leadership towards development of advanced missiles, strategic systems, fighter aircrafts, unmanned aerial defence systems, underwater systems, radars, armoured vehicles, armaments, other futuristic technologies among many others have been transformative for enhancing the defence capabilities of India.

He established state-of-the-art technical infrastructure, DRDO-Industry-Academia (DIA) centres of excellence for advanced research in Academia, young scientist laboratories to promote youth and for defence equipment and weapon systems development and production enabled participation of private industry, MSMEs & Startups in a big way.

His phenomenal contributions made India self-reliant in many critical areas including missiles, radars, sonars, torpedoes, electronic warfare systems, armoured vehicles, guns, aircrafts and enhanced defence exports substantially.

8. Notable contributions

(a) As Secretary DD R&D, Chairman DRDO and SA to RM

He has made significant contributions towards indigenous design, development and deployment of a spectrum of defence systems for the Indian Armed Forces. Under his leadership, DRDO has achieved multiple technological breakthroughs in the areas of Missiles & Strategic Systems, Aeronautics, Armament and Combat Engineering, Electronics & Communication Systems, Naval Science & Materials and Micro Electronic Devices & Computational Systems. This has resulted in significant reduction in the defence imports.

His significant contributions led to continuous engagement with armed forces leading to approval of DRDO developed systems for induction worth more than Rupees One Lakh Crores (during Aug 2018 to Aug 2022) and initiation of many mission mode projects for development of platforms for enhancing operational capability of Armed Forces.

He was the chief architect of India's first Anti Satellite Test 'Mission Shakti' elevating India to the elite club of four nations establishing for the first time the strategic capabilities for India's security in the space domain.

He played a vital role in the successful development of Air Independent Propulsion (AIP), Hypersonic Technology Demonstrator Vehicle (HSTDV), Advanced Towed Artillery Gun System (ATAGS), Helicopter Launched Anti-Tank Guided Missile (HeliNa), Anti-Tank Missile 'Nag', Active Electronically Scanned Array Radar (AESA), Naval Anti-Ship Missile Short Range (NASM-SR), Air-to-Air Missile 'Astra', New generation Agni P strategic missile, Pralay surface

to surface quasi ballistic missile, Light Combat Aircraft (LCA), Submarine Launched Ballistic Missile (SLBM), Anti Drone System (D4), Floating Test Range (FTR), MALE UAV TAPAS, Akash NG, UAV launched PGM, AESA Radar, New generation Anti-radiation missile RudraM-II, Vertical Launched Short Range Surface-to-Air Missile (VL-SRSAM), Low Frequency Dunking Sonar (LFDS), Advanced Light Weight Torpedo (ALWT), Supersonic Missile Assisted Release of Torpedo (SMART) and Guided Pinaka Rocket system.

Many advanced technologies viz Gallium Nitride (GaN) devices, Seekers, Navigation sensors, Radomes, Stealth Wing Flying Testbed (SWiFT) and Quantum communication upto 100km, advanced chaffs for aircrafts and ships, Single crystal blades for aeroengines, solid fuel ducted ramjet (SFDR) have been successfully developed.
Dr Reddy has brought in mechanisms for greater synergy with Armed forces through Joint reviews, Joint Project Management Teams (JPMT) and making armed forces a part of project teams for smooth execution of programmes and projects in a time bound manner.

He has created mechanisms for effective integration of Industry in Design & Development of Systems and facilitated over 700 ToTs to Indian industries. The mechanisms such as Technology Development Fund (TDF), Development-cum-Production Partner (DcPP) have resulted in effective participation of MSMEs, private industries, Startups in development of weapon systems, missiles, bombs, ammunitions, radars among many others.

Around Fifteen DRDO-Industry-Academia Centre of Excellence (DIA-CoE) have been established to integrate academia and industry at R&D stage itself. He created R&D centres in Defence Space and Cyber domains. On the direction of Hon'ble PM, Dr Reddy has established five Young Scientists' Labs in niche technology areas, promoting innovative and disruptive research through young engineers and researchers in India.

His focused drive has led to export of systems like BrahMos, Weapon locating radars and torpedoes and opened up multiple export opportunities for systems like Akash Missile System, MBRLS Pinaka, Torpedoes, Hull mounted Sonars etc.

He played a vital role in combating COVID-19 pandemic. Under his leadership, DRDO developed more than 75 products including high-end ventilators, large oxygen plants, anti-Covid drug 2-DG, personal protective equipment (PPE) and transferred the technology to over 100 industries & built many COVID hospitals across the country.

Dr Reddy has steered more than 300 new projects which include Long Range Surface-to-Air Missile (LRSAM), Hypersonic Glide Vehicle (HGV), Long Range Air-to-Air Missile (Astra Mk-II), Air-to-Surface Missiles, Light Weight Tank, Anti-personnel and Anti-tank mines, Self-propelled Mine Burier (SPMB), Arjun Recovery & Repair Vehicle (ARRV), Air Defence Fire Control Radar, Multi-Mode Hand Grenades, CBRN protection systems, Electrical Heavy Weight Torpedo (EHWT), Electronic Warfare and advanced Bridging Systems.

To keep pace with the evolving landscape in defence technologies; Design of major flagship programmes like Advanced Medium Combat Aircraft (AMCA), Light Combat Aircraft Mk-2

(LCA Mk-2), Twin Engine Deck Based Fighter (TEDBF) and Hypersonic Missiles were undertaken in his leadership.

The successful realization of these projects and technologies will boost the defence capabilities of our country, reduce the defence imports significantly and enhance the exports in a big way.

(b) As Director General, Missiles and Strategic Systems

As one of the pre-eminent defence scientist in India spearheading Dr APJ Abdul Kalam Missile Complex, Integrated Test Range, Terminal Ballistic Research Laboratory and other strategic establishments, he led the design and development of wide range of tactical and strategic missile systems to attain complete self-sufficiency in missiles and initiated development of state-of-the-art weapons and technologies.

He provided necessary thrust to the Ballistic Missile Defence (BMD) programme and successfully demonstrated the PDV Exo and AAD Endo atmospheric Interceptor Missile capabilities elevating India into a league of select nations.

He led the development trials of Beyond Visual Range Air to Air Astra Missile (BVRAAM) successfully for its complete launch envelope with indigenous Seeker, and led to its induction. His key technological initiatives were pivotal in realization of Smart Anti Airfield Weapon and Guided Pinaka & his contributions had a major impact on defence preparedness of the country paving the way for self-sufficiency in Missile Systems and Guided Weapon Technologies.

His initiatives paved the way for development of QRSAM, Akash1S, Rudram II, Rudram III, Submarine launched Cruise Missile, Pralay, High Power Electromagnetic Weapon, Long Range Guided Bomb (LRGB), Liquid Fuel Ramjet, Solid Fuel Ducted Ramjet, Akash NG, NGARM, Short and Medium range Naval Anti-Ship Missiles, VSHORADS and MPATGM.

A number of Missile integration and maintenance facilities have also been established across the country for deployment of Missiles based on special design features and technological requirements. Some of the infrastructures are unique in nature and the only facility of such kind existing in the country.

(c) As Director, Research Centre Imarat (RCI) and Programme Director

As Director, Research Centre Imarat (RCI), he led the design and development of advanced Avionics Systems including Navigation, Embedded Computers, Control, Guidance, Simulation, RF and Imaging Infrared Seekers, Power Supplies, Telemetry, Ground Systems for defence applications.

He has overseen a number of Technology Development/Mission Mode/S&T projects delivering variety of Systems to multiple Projects and led R&D in the advanced technology areas ultimately leading to the realization of System on Chip (SoC) and Avionics in a miniaturized single package. Under his leadership, Imaging Infrared (IIR) Seekers and Radio Frequency (RF) Seekers have

been successfully realized, a much guarded cutting-edge technology, which had incredible impact on India's defence programmes.

As Programme Director, successfully developed the Medium Range SAMs and achieved a streak of successes in the maiden missions. As Project Director, developed the country's first Guided Bomb and laid foundation for Long Range Smart Guided systems with precision strike capabilities. He has established a number of state-of-the-art research and test facilities with modern infrastructure including Open Range Test facility for radar cross section measurement (ORANGE) to facilitate research, development and testing of cutting edge Aerospace technologies.

His phenomenal R&D contributions as Director, RCI made India self-reliant in Missiles and mission critical avionics technologies. He paved the way for development of IRNSS Receiver, Atomic Interferometric Gyros and Accelerometers (AIGA), Mirror based miniaturized high performance Ring Laser Gyroscopes (MRLG), Reaction Bonded Silicon Nitride (RBSN) Ceramic Radome, Hemispherical Resonating Gyroscope (HRG), Silicon Based Micro propulsion System (SBMPS), Telemetry on Chip (ToC), Micro Opto Electro Mechanical System (MOEMS), Stellar Navigation for futuristic ICBM applications, Optimised Integration technologies, Radome development for various Missile systems upto 94GHz, advanced Power Supplies and Batteries and highly Miniaturized Integrated Avionics.

(d) As a young Navigation Engineer and subsequently as Technology Director

As a young Navigation engineer, he carried out extensive R&D and designed & developed Inertial Sensors, Navigation schemes, Algorithms, Calibration methodologies, Sensor Models, Simulation along with development of Satellite Navigation Receivers and Hybrid Navigation Systems for a variety of defence applications including the Ship Navigation.

He developed diversified Inertial Sensors - Dynamically Tuned Gyroscope (DTG), Fiber Optic Gyroscope (FOG), Ring Laser Gyroscope (RLG) and Accelerometers and realized Navigation Systems for numerous applications ranging from Strategic & Tactical Missiles, Torpedoes, Smart Bombs, Tanks, UAVs to Combat Aircrafts, Ships and civilian applications. He designed & developed the country's first fault tolerant redundant navigation system with innovative algorithms for long range Agni series of missiles.

As Project Leader he developed India's first indigenous Ring Laser Gyro based high accuracy Inertial Navigation System for Long Range Missiles and Ship applications and also led the development of highly reliable, low cost, low volume, advanced MEMS based INS+GPS+GLONASS system for smart weapons and tactical applications.

As Project Director, led the design, development and delivery of indigenous RLG based Ship Navigation System, and Strap-down-Reference systems (SRS) to Indian Navy.

Under his leadership, a new world class Navigation and Embedded Computers Complex was built with state-of-the-art facilities and equipment to cater for all the futuristic research and development

to make the country self-reliant and lead the world in the area of modern navigation and embedded computers.

9. Major Awards, Honours and Recognitions

International

- Honorary Fellowship Award (2019) - He is the first Indian in over 100 years to be conferred with the prestigious Honorary Fellowship by the Royal Aeronautical Society (RAeS), London, an internationally renowned Scientific Society and world's oldest technical aerospace society founded in 1866.

- American Institute of Aeronautics and Astronautics Missile Systems Award (2019) - He is the first recipient outside the USA in over four decades to be honoured with the prestigious Missile Systems Award by American Institute of Aeronautics and Astronautics (AIAA), world's largest Aerospace Technical Society. in recognition of his significant national contributions and outstanding technology leadership towards indigenous design and development of Missiles and Strategic Systems in India.

- Royal Aeronautical Society (RAeS) Silver Medal (2015) - Conferred by the RAeS, London in recognition of lifetime contributions towards development of Navigation and Avionics Systems for Strategic Missions of India and for pioneering contributions towards promotion of Aerospace in the country. The first Indian recipient of the Award.

National

- Life Time Achievement Award (2023) - The Indian Society of Systems for Science and Engineering (ISSE) conferred him with Life Time Achievement Award for his Exemplary contributions towards establishing and promoting the concepts of System Science & Engineering in R&D organizations.

- Prof Y. Nayudamma Memorial Gold Medal (2022) - Conferred by the Telangana Academy of Sciences for outstanding contributions in the field of S&T in India.

- Aryabhata Award (2021) - Conferred by the Astronautical Society of India for life time contributions to the promotion of aeronautics and astronautics in India.

- National Design Award (2017) - Conferred by National Design Research Forum (NDRF), Institution of Engineers, India for spearheading design and development of indigenous advanced Guided Weapon Systems and Avionics technologies.
- Pragna Award (2017) - Conferred by Pragna Bharati in recognition of his pioneering contributions to Indian Defence R&D. Received from Hon'ble Union Minister of HRD, Govt of India.

- Kala Ratna (Hamsa) Award (2017) - Conferred by the Government of Andhra Pradesh for lifetime contributions to Science and Technology.

- APAS Lifetime Achievement Award (2016) - Conferred by the Andhra Pradesh Akademi of Sciences for significant lifetime contributions to Defence R&D.

- Electronic Industries Association of India (ELCINA EFY) Award (2016) - Conferred in recognition of exemplary contribution to Defence Technologies and Electronics.

- National Aeronautical Prize (2016) - Conferred by Aeronautical Society of India (AeSI) for significant national contributions towards design and development of indigenous Missiles Systems and technologies.

- National Systems Gold Medal (2015) - Conferred by the Systems Society of India in recognition of the pioneering contributions to Aerospace Engineering in India. Received from President, Systems Society of India during the 39th National Systems Conference.

- IEI – IEEE (USA) Joint Award for Engineering Excellence (2015) - The first joint award (instituted for the first time in India during the year 2015) for engineering excellence conferred in recognition of significant contributions in Navigation and Avionics technologies in India.

- Bharat Ratna Sir Mokshagundam Visvesvaraya Award (2015) - Conferred by Institution of Engineers (IEI), India for lifetime contributions and significant national achievements in the field of Aerospace Engineering.

- Homi J. Bhabha Memorial Gold Medal (2013) - Conferred by the Indian Science Congress Association in recognition of life time contributions to Electronics and Communication Engineering in India. Received from Hon'ble Prime Minister of India during the 101st Indian Science Congress at Jammu.

- Dr Biren Roy Space Science and Design Award (2012) - Conferred by Aeronautical Society of India (AeSI) for outstanding contributions towards conception of redundant INS configuration schemes and development of highly accurate and highly reliable redundant navigation systems for long range strategic missiles in India.

- ASI Rocketry and related Technologies Award (2012) - Conferred by the Astronautical Society of India (ASI) in recognition of outstanding contributions to Aerospace Systems and technologies.

- IETE B.V. Baliga Memorial Award (2012) - Conferred by Institution of Electronics and Telecommunication Engineers (IETE), India for outstanding contributions towards planning, design, development, production and timely delivery of critical avionics systems and diversified navigation technologies for land, air, sea and space applications in India.

- SSI Vikram Award (2012) - Conferred by Systems Society of India for realizing Systems of National Importance. Received from President, Systems Society of India during the National Systems Conference.

• FAPCCI Outstanding Scientist/Engineer Award (2012) - Conferred by the Federation of Andhra Pradesh Chambers of Commerce and Industry (FAPCCI), A.P. for outstanding contributions in indigenization of missile technologies in India and for pioneering the R&D and manufacture of long range missiles and its successful launch.

• Prof Yeshwant Rao Kelkar Yuva Puraskar (2007) - In recognition of efforts strengthening self-reliance in the areas of Navigation Systems for Defence Applications of our country. Received from Akhil Bharatiya Vidyarthi Parishad, India.

DRDO awards

• Technology Leadership Award (2016) - Conferred in recognition of outstanding leadership for programmes, projects and technology management of Missiles and Strategic Systems.

• Scientist of the Year Award (2010) - In recognition of outstanding contributions towards indigenous design and development of state-of-the art navigation systems, algorithm, transfer alignment schemes, GPS GLONASS based hybrid navigation system and productionisation for various missile systems, naval systems and other applications. Received from Hon'ble Defence Minister of India.

• Performance Excellence Award (2009) - Received as a team member for vital contributions towards successfully developed indigenous capability of integrate and deploy vertically launched Prithvi class of missiles from ships, thereby providing naval ships a capability for engaging and striking shore based strategic targets from the sea.

• Path-breaking Research/Outstanding Technology Development Award (2007) - Received as a team member for vital contributions in indigenous design, development and successful flight testing of AGNI-3 missile system, thereby providing long range strategic missile capability to the country.

• AGNI Award for Excellence in Self Reliance (2006) - Conferred as Team Leader for successfully developed indigenous Ring Laser Gyro (RLG) based INS system for fighter aircraft and medium/long range missile applications. Received from Hon'ble Prime Minister of India.

• Path-breaking Research/Outstanding Technology Development Award (2006) - Received as a team member for vital contributions towards achieving a unique milestone in the development of Area Defence Systems against ballistic missile attack on vulnerable areas by successfully intercepting an incoming missile with ballistic trajectory using interceptor PAD missile at exo-layer and put India on the world map as the 4th country in the world with capabilities for intercepting incoming ballistic missile.

• Performance Excellence Award (2004) - Received as a team member for vital contributions towards the successful Indo-Russian joint development BrahMos - Supersonic Cruise Missile.

• Young Scientist Award (1998) - For outstanding contributions towards development of test methodology & test setups for evaluation & performance enhancement of Inertial Navigation Systems. Received from Hon'ble Prime Minister of India.

(b) Other Notable Recognitions

• ATA Award of Excellence in S&T (2017) - Conferred in recognition of significant lifetime contributions to Defence S&T in India, American Telugu Association (ATA), USA.

• Dr Ramineni Foundation (USA) Visishta Puruskaaram Award (2016) - Conferred in recognition of significant national contributions towards Defence R&D.

• Best Laboratory Award (2013) (Received as Lab Director, RCI) - Conferred by the Indo-Russian Joint Venture BrahMos Aerospace for Design, Development, Delivery and Productionisation of critical Avionics technologies. Received from Dr APJ Abdul Kalam, Former President of India.

• Commendation Certificate (1992) - As a young scientist, conferred with the certificate for contributions to Integrated Guided Missiles Development Programme (IGMDP). Received from Dr APJ Abdul Kalam, Scientific Adviser to Raksha Mantri (SA to RM) & Secretary, Dept of Defence R&D.

• Commendation Certificate (1989) - As a young scientist, conferred with the certificate for contributions towards realization of Inertial Navigation Systems and Integrated Guided Missiles Development Programme (IGMDP). Received from Dr VS Arunachalam, SA to RM & Secretary, Defence R&D.

(c) Fellow of prestigious Scientific Societies, Academies and Institutes

• Honorary Fellow, Royal Aeronautical Society, London (Hon.FRAeS), first Indian recipient in over 100 years.

• Honorary Fellow, Computer Society of India (Hon.FCSI)
• Honorary Fellow, Sensors Research Society, India (Hon.FSRS)
• Honorary Fellow, Project Management Association, India (Hon.FPMA-India)
• Honorary Member, Automatic Control and Dynamic Optimization Society (ACDOS), a national member organisation of International Federation of Automatic Control, Austria

• Fellow, Indian National Academy of Engineering (FNAE)
• Fellow, Royal Institute of Navigation, London (FRIN), first Scientist from India.
• Full Foreign Member, Academy of Navigation and Motion Control, Russia (FMANUD), first Scientist from India.

• Fellow, Institution of Engineering and Technology, UK (FIET)

- Fellow, Aeronautical Society of India (FAeSI)
- Fellow, Society for Shock Wave Research, India (FSSWR)
- Fellow, Institution of Engineers (India) (FIE)
- Fellow & Founder Member, Telangana Academy of Sciences (FTAS)
- Fellow, Institution of Electronics and Telecommunication Engineers (FIETE)
- Fellow, Indian Society of Systems for Science and Engineering (FISSE)
- Associate Fellow, American Institute of Aeronautics and Astronautics, USA (AFAIAA)