



# MADRAS INSTITUTE OF TECHNOLOGY

ANNA UNIVERSITY, CHENNAI



## DEPARTMENT OF AEROSPACE ENGINEERING

### PROJECTS COMPLETED

S.No	Title of the Project	Name of the Investigator(s)	Total Cost	Funding Agency	Year
1.	Effect Of Burning Rate Modifiers On Surface Temperature Of Composite Solid Propellants	Coinvestigator: Dr.B.T.N.Sridhar	Rs. 5,00,000/-	UGC-MHRD	1992 - 1996
2.	Data Generation Of Wind Tunnel And Cyclone Effects On Structures For Code Formulation	CO-Principal Investigator: Dr.K.M.Parammasivam	Rs. 5,00,000/-	AICTE	1996 - 1997
3.	Combustion Characteristics Of AP-HTNR Composite Solid Propellants And HTNR Polymer	Coinvestigator: Dr.B.T.N.Sridhar	Rs. 5,00,000/-	AICTE	1996 - 2000
4.	Modernization Of Subsonic Wind Tunnel At Mit	CO-Principal Investigator: Dr.K.M.Parammasivam	Rs. 8,00,000/-	AICTE	1998 - 1999
5.	Design And Analysis Of CFRP Motor Case	Dr.V.Baskar	Rs.4,80,000/-	DRDL, Hyderabad	2001-2003
6.	Thermo Structural Design Of HRV Wing	Dr.R.Dhanaraj	Rs.4,98,000/-	DRDL, Hyderabad	2001-2002
7.	Mathematical Modeling Of Flow In A Kerosene Fuelled Scram Jet Combustor	Dr.B.T.N.Sridhar	Rs.4,95,000/-	DRDL, Hyderabad	2001-2002
8.	Experimental Evaluation Of Aerodynamics Characteristics Of HRV Vehicle Configuration At Low Speeds	Dr.B.T.N.Sridhar Dr.K.M.Parammasivam	Rs.4,48,500/-	DRDL, Hyderabad	2001-2003
9.	Temperature Mapping Rocket Motor Propellant	Dr.R.Dhanaraj	Rs.7,00,000/-	ASL, Hyderabad	2001-2003
10.	Micro Satellite Development In Anna University (ANUSAT)	Dr.K. Jayaraman	Rs.4,39,00,000 /-	ISRO, Bangalore	2002-2005
11.	Simulation Of Tall Slender Structures Under Cyclonic Storms Using Cfd And Wtt	Dr.K.M.Parammasivam	Rs.10,00,000/-	AICTE	2002-2004
12.	MIL BUS COMM Consultancy For Development Of Application Software	Dr.J.Shanmugam	Rs.4,92,000/-	ISRO, Bangalore	2002-2004
13.	Determination Of Ageing Characteristics Of Solid Rocket Motors	Dr.B.T.N.Sridhar	Rs.70,00,000/-	ASL, Hyderabad.	2002-2007
14.	Design And Development Of Loom For 3-Dimensional Spacer Fabric	Dr.V.Baskar, Dr.A.Joseph Stanley	Rs.6,05,600/-	AR&DB, New Delhi	2002-2004
15.	Estimation Of Control Characteristics Of HRV At Low Speeds	Dr.V.Baskar, Dr.S.Elangovan, Dr.B.T.N.Sridhar	Rs.1,98,000/-	DRDL, Hyderabad	2003



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16.	Experimental Evaluation Of Component Characteristics Of HRV At Low Speeds	Dr.S.Elangovan, Dr. B.T.N.Sridhar	Rs.1,94,400/-	DRDL, Hyderabad	2002-2004
17.	Aerodynamic Loading And Thermal Mapping	Dr.B.T.N.Sridhar	Rs.4,75,000/-	DRDL, Hyderabad	2003
18.	Stress Analysis And Weight Estimation Of Major Structural Components Of HTV	Dr.B.T.N.Sridhar, Dr.V.Baskar	Rs.4,85,000/-	DRDL, Hyderabad	2003
19.	Structural Layout On Conceptual Design Of Major Structural Components Of HTV Based On Aero Thermal Loading	Dr.V.Baskar	Rs.4,75,000/-	DRDL, Hyderabad	2003
20.	Upgradation Of Supersonic Wind Tunnel In CAP Laboratories	Dr.B.T.N.Sridhar	Rs.7,85,000/-	AR&DB, New Delhi	2003
21.	Establishment Of High Temperature Material Characterization Centre	Dr.B.T.N.Sridhar	Rs.4,32,00,000 /-	DRDO, New Delhi.	2004
22.	Airframe Attachment-Hstdv Engine Airframe Attachment Design	Dr.R.Dhanaraj	Rs.3,30,000/-	DRDL, Hyderabad	2004
23.	Fabrication And Establishment Of Experimental Facilities	Dr.A.Joseph Stanley	Rs.2,75,000/-	HCE, Padur	2004-2007
24.	Tip To End Flow Simulation Of HSTDV Configuration Incorporating Pylon Based Scram Jet Combustor	Dr.B.T.N.Sridhar	Rs.9,84,000/-	DRDO, Hyderabad	2004
25.	Development Of Gas Generator Propellant Formulations With Low Flame Temperature	Dr.B.T.N.Sridhar	Rs.9,80,000/-	RCI, Hyderabad	2005-2007
26.	Virtual Instrumentation Of Mit Wind Tunnels	CO-Principal Investigator: Dr.K.M.Parammasivam	Rs.9,36,000/-	AICTE	2005-2007
27.	CFD Analysis Of Supersonic Combustion In A Pylon Based Scramjet Combustors	Dr.B.T.N.Sridhar	Rs.9,75,000/-	DRDL, Hyderabad.	2005
28.	Thermal And Thermo-Mechanical Characterization Of Aluminium Alloy HE-15 WP Condition, Inconel – 601 And Hastalloy – 718 For Hot Gas Actuators	Dr.B.T.N.Sridhar Dr. R. Dhanaraj	Rs.9,50,000/-	RCI, DRDO Hyderabad	2007
29.	Development Of Model Mounting Mechanism For Wind Tunnel	Dr.S.Elangovan, Dr.C.Senthilkumar	Rs.19,16,000/-	AR&DB New Delhi	2008-2011
30.	Development Of Anusat II	CO INVESTIGATOR: Dr. V. Arumugam	Rs.25,00,000/-	ANNA University	2008-2017
31.	Development Of Reaction Systems Using Solid Hot Gas Generators	Dr. B.T.N.Sridhar, Dr.K.Senthilkumar	Rs.9,99,000/-	RCI, DRDO Hyderabad	2009
32.	Augmentation Of Facilities In Aerodynamic And Structures Labs	Project Coordinator: Dr.K.M.Parammasivam	Rs.53,00,000/-	<u>DST-FIST</u>	2009 - 2014



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S.No	Title of the Project	Name of the Investigator(s)	Total Cost	Funding Agency	Year
33.	Thermal Analysis Of Graphite Samples	Dr. B.T.N. Sridhar	Rs.5,51,500/-	Graphite India Limited, Bangalore	2010
34.	First Pilot View (FPV) Flying UAV Test Bed For Acoustic And Imaged Data Generation	Dr.K.Senthilkumar	Rs.14,97,000/-	NAL, Bangalore	2010
35.	Impact Characterization Of Laminate Composites	Dr. B.T.N. Sridhar, Dr.S.Thanigaiarasu	Rs.9,85,000/-	ADE,DRDO Bangalore	2010
36.	Joint Time Frequency Representation Of Acoustic Signatures Of Electrical MAV's	Dr.K.Senthilkumar, Dr. A.SaravanaKumar	Rs.9,80,000/-	ADE, DRDO Bangalore	2011-2012
37.	Strength Of Laminated Composites By Impact And Compression Tests	Dr.S.Thanigaiarasu, Dr.B.T.N.Sridhar	Rs.9,85,000/-	ADE,DRDO Bangalore	2012
38.	"Burner Design With A Porous Flame Stabilizer And Estimation Of Combustion Characteristics	Dr.K.M.Parammasivam	Rs.17,57,500/-	AR&DB DRDO India	2012 - 2014
39.	Experimental Investigation Of The Role Of Innovative Vortex Generators On High Speed Jet Control	Dr.S.Thanigaiarasu	Rs.18,82,000/-	AR & DB DRDO New Delhi	2012
40.	Force Measurement For The UAV Model Using Wind Tunnel And 6- Component Internal Balance	Dr.C.Senthilkumar	Rs. 2,27,500/-	IIT, Madras	2013
41.	Consultancy For Aerodynamic Design And Development Of High Subsonic/ Transonic Glide Vehicle	Dr.S.Paneerselvam	Rs.8,50,000/-	RCI, Hyderabad	2013
42.	Calibration Of Orifice Plates At Different Air Flow Rates Using The Air Blower	Dr.C.Senthilkumar	Rs.35,294/-	National Institute of Ocean Technology, Chennai	2014
43.	Evaluation Of Stall Characteristics Of The Control Surface Of RCI Reduced Dimension Vehicle	Dr.C.Senthilkumar	Rs.7,07,440	RCI, DRDO, Hyderabad	2015
44.	Design And Development Of Smart Phone Controlled Micro UAV Systems	Dr. K. Senthil Kumar	Rs. 34,44,000/-	AR&DB, New Delhi	2014-2016
45.	Setting Up Of Combustion Driven Shock Tunnel	Dr. C. Senthilkumar, Dr. B.T.N. Sridhar, Dr. V. Arumugam	Rs. 44,06,000/-	AR & DB, New Delhi	2014-2016
46.	Development Of Mathematical Model For Prediction Of Energy Loss In Canister During Missile Launching	Dr. C. Senthilkumar	Rs.24,97,000/-	ASL, Hyderabad	2014-2016
47.	Thermal Characterization And Analysis Of Carbon – Carbon Samples For Aerospace Applications	Dr. V. Arumugam, Dr. C. Senthilkumar, Dr. B.T.N. Sridhar	Rs. 7,60,000/-	GIL, Bangalore	2014-2016



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S.No	Title of the Project	Name of the Investigator(s)	Total Cost	Funding Agency	Year
48.	Design And Development Of Rotary Wing VTOL Mini Unmanned Aircraft System For Tamil Nadu Police	Dr. K. Senthil Kumar, Dr. S. Thamarai Selvi	Rs. 95,00,000/-	DGP, Government of Tamil Nadu	2015-2019
49.	Effects Of Combustor Exit Profile In Tip And Platform With Film Cooling Effectiveness	Dr.K.M.Parammasivam	Rs. 14,45,000/-	UGC, New Delhi	2015-2018
50.	Design And Development Of Unmanned Aerial Vehicles	Dr. K. Senthil Kumar, Dr. S. Thamarai Selvi	Rs. 20,00,00,000/-	Tamil Nadu Government under TANII scheme	2015-2018
51.	Experimental Investigation Of Scalable Under Water Launching Missile System	Dr.K.M.Parammasivam	Rs.1,00,000/-	IEI	2016 - 2017
52.	Evaluation Of Stall Characteristics Of Wing & Control Surface And Overall Characteristics Of A Typical Missile Configuration	Dr. C. Senthilkumar	Rs.14,87,059/ -	DRDL, Hyderabad	2016 - 2017
53.	Temperature Effect On Falling Weight Impact Damage In Composite Laminates	Dr.V.Arumugam	Rs.16,24,000/ -	AR&DB , New Delhi	2016-2018
54.	Passive Method Of Base Drag Reduction For Range Enhancement Of Gun Launched Shell Configuration	Dr. C. Senthilkumar Dr.V.Arumugam	Rs.53,36,293/ -	ERIP, DRDO, New Delhi	2017-2019
55.	Characterization Of Composite Sandwich Panel Materials For Radome Structures	Dr.V.Arumugam	Rs.10,00,000/ -	DRDO	2017-2019
56.	Unmanned Aerial Vehicle Photogrammetric Mapping For Flood Preparedness In The State Of Tamilnadu	Dr. K. Senthil Kumar, Dr. A. Saravanakumar	Rs. 7,00,00,000/-	Disaster Management Agency, Government of Tamil Nadu	2017-2020
57.	Design And Implementation Of Micro Quad Copter UAV	Dr. K. Senthil Kumar	Rs.4,31,000/-	Office of the Sub Divisional Magistrate and Sub Collector, Kumbakonam	2018
58.	Supply Of Unmanned Aerial Vehicles	Dr. K. Senthil Kumar, Dr. A. Saravanakumar	Rs.25,00,000/ -	State Police Chief, Kerala, Thiruvananthapuram	2017 - 2018
59.	Supply, Design, Development Training Maintenance Of Rotary Wing VTOL Mini Unmanned Aircraft System With Accessories For Use Of Kolkata Police	Dr. K. Senthil Kumar, Dr. A. Saravanakumar	Rs.26,00,000/ -	Office of Commissioner of Police, Government of West Bengal, Kolkata	2017 – 2018



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S.No	Title of the Project	Name of the Investigator(s)	Total Cost	Funding Agency	Year
60.	Design And Development Of Fixed Wing UAV With Mapping Camera	Dr. K. Senthil Kumar, Dr. A. Saravanakumar	Rs.15,99,000/-	Tamil Nadu Agricultural University, Department of Remote Sensing and GIS, Coimbatore	2018 -2021
61.	Design And Development Of Quad Copter UAV And Accessories With Digital Camera	Dr. K. Senthil Kumar, Dr. A. Saravanakumar	Rs.8,00,000/-	Tamil Nadu Agricultural University, Department of Remote Sensing and GIS	2018 -2021
62.	Integration Of Thermal Imaging System And Accessories With Quad Copter UAV	Dr. K. Senthil Kumar, Dr. A. Saravanakumar	Rs7,96,000/-	Tamil Nadu Agricultural University, Department of Remote Sensing and GIS, Coimbatore	2018 -2021
63.	Integration Of Visible Sensors And Accessories With UAV System	Dr. K. Senthil Kumar, Dr. A. Saravanakumar	Rs7,92,000/-	Tamil Nadu Agricultural University, Department of Remote Sensing and GIS, Coimbatore	2018 -2021
64.	Village Map Georeference Using UAV Digital Ortho For Forest Boundary Demarcation In Vippar Village, Vilathikulam Taluk, Tuticorin District	Dr. K. Senthil Kumar	Rs.3,60,000/-	Revenue Administration, Disaster Management and Mitigation Department	2018-2019
65.	Supply Of Tethered UAV And Its Accessories To Bharat Electronics Limited	Dr. K. Senthil Kumar, Dr. A. Saravanakumar	Rs.1,30,27,000 /-	Bharat Electronics Limited, Bangalore	2018-2020
66.	Supply Of Quad Copter UAV And Its Accessories To Bharat Electronics Limited	Dr. K. Senthil Kumar, Dr. A. Saravanakumar	Rs.72,54,000/-	Bharat Electronics Limited, Bangalore	2018-2020
67.	River Profile Based Post Flood Scenario Assessment Using Unmanned Aerial Survey Output Of Pamba River Basin	Dr. K. Senthil Kumar, Dr. A. Saravanakumar	Rs.15,00,000/-	KSREC- Kerala State Remote Sensing & Environment Centre	2018 -2019



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S.No	Title of the Project	Name of the Investigator(s)	Total Cost	Funding Agency	Year
68.	Drone Based Micro Level Spatial Monitoring Of Fresh Water Lakes Of Kerala-UAV Mapping	Dr. K. Senthil Kumar, Dr. A. Saravanakumar	Rs.15,00,000/-	KSREC- Kerala State Remote Sensing & Environment Centre	2018 -2019
69.	Survey And Mapping For Proposed Road Construction Design & Analysis Using Unmanned Aerial Systems(UAS)	Dr. K. Senthil Kumar	Rs.16,56,000/-	North Eastern Space Application Centre (NESAC), Department of Space, Umiam Meghalaya	2019-2021
70.	Augmentation of facilities in the Department of Aerospace Engineering	Fist coordinator Dr.V.Arumugam	Rs. 14,00,000/-	DST	2020 - 2020
71.	Supply, Installation, Commissioning & Training Of 02 (Two) Sets Of Complete Package Of Unmanned Aerial Vehicle System (UAV) For Surveying And Mapping On Nomination Basis	Dr. K. Senthil Kumar	Rs.3,63,35,000 /-	Central Mine Planning & Design Institute Ltd. (CMPDI), Jharkhand	2020-2021
72.	Value Added Programme On UAV System	Dr. K. Senthil Kumar	Rs.9,40,500/-	The Kalaingar Karunanidhi Institute of Technology (KIT)	2020-2021
73.	Assemble And Supply Of 25 Drones Of Disinfectant Spraying Drones	Dr. K. Senthil Kumar	Rs.5,00,00,000 /-	Revenue Administration, Disaster Management Department, Tamil Nadu	2020-2021
74.	Disinfectant Spraying In Chennai Corporation	Dr. K. Senthil Kumar	Rs.18,40,800/-	Greater Chennai Corporation	2020-2021
75.	Supply Of Single Trainer Drones	Dr. K. Senthil Kumar	Rs. 1,76,054/-	Tamil Nadu Police	2020-2021
76.	Monitoring The Mining Activity, Volumetric Analysis, Lease Boundary Analysis, Surveillance To Curb Illegal Mining And Various Other Applications Related To Mining Industry In The State Of Tamil Nadu	Dr. K. Senthil Kumar	Rs.50,00,000/-	Department of Geology and Mining, Government of Tamil Nadu	2020-2021



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S.No	Title of the Project	Name of the Investigator(s)	Total Cost	Funding Agency	Year
77.	Design And Development Of Module Drone	Dr. K. Senthil Kumar	Rs. 7,00,000/-	Tamil Nadu Agricultural University, Department of Remote Sensing and GIS, Coimbatore	2021
78.	Scoping Study On Role Of Uavs/Drones In Disaster Management	Dr. K. Senthil Kumar	Rs.42,95,250/-	National Disaster Management Authority, Ministry of Home Affairs	2021
79.	Data Driven Research Study On River Desilt Monitoring & Analysis Using Drones (Unmanned Aerial Vehicle) At Nagapattinam District Under RUSA Scheme	Dr. K. Senthil Kumar	Rs.14,85,000/-	State Project Director, RUSA	2021
80.	Study On Drones To Control Of Larvae In Major Water Ways In Chennai	Dr. K. Senthil Kumar	Rs.11,38,500/-	Greater Chennai Corporation	2021

### ONGOING PROJECTS

S.No	Title of the Project	Name of the Investigator(s)	Total Cost	Funding Agency	Year
1.	Sprayer Drone Operation To Control Of Larvae In Major Water Ways In Chennai	Dr. K. Senthil Kumar	Rs.12,39,000/-	Greater Chennai Corporation	2021-PRESENT
2.	Data Driven Research And Analysis Of Effects Of Drone Based Ultra Low Volume Aerial Spraying Of Bio Disinfectant On COVID-19 Under RUSA Scheme	Dr. K. Senthil Kumar	Rs.15,00,000/-	State Project Director, RUSA	2021-PRESENT
3.	Supply Of Micro Drones	Dr. K. Senthil Kumar	Rs.71,30,000/-	Technical Services, Tamil Nadu Police	2021-PRESENT
4.	Supply Of Drone For Disaster And Rescue Operations	Dr. K. Senthil Kumar	Rs.1,14,00,000 /-	AFGP, Operations, Tamil Nadu Police	2021-PRESENT
5.	UAV's For Aerial Remote Sensing	Dr. K. Senthil Kumar	Rs. 23,08,080/-	National Remote Sensing Centre. ISRO, Hyderabad	2021-PRESENT
6.	Supply Of 16 Nos Of Micro Drones For Field Policing	Dr. K. Senthil Kumar	Rs.36,80,000/-	Tamil Nadu Police	2021-PRESENT