SRI SAI RAM ENGINEERING COLLEGE

Balamurugan Ulaganathan
M Tech. (IC Engines)

Qualified professional with cross-functional competencies in all phases of **Research and Development of IC Engines** and **screw compressor** including design, research, testing, competitor analysis and process improvement.**Research & Development ~ Design Engineering ~ Product Design & ValidationTechnological Innovations ~ Product Testing ~ New Product**

1. Name : **U.BALA MURUGAN**

2. Designation : Associate Professor,
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5. Date of Birth : 29.12.1979

6. Residential Address **:** Plot number 137, Jains Akshardham, River view avenue road, Manapakkam, Chennai – 600125.

7. Academic Qualification :

- M Tech. (IC Engines) from Vel Tech University in 2012.
- MBA (Project Management) from Alagappa University in 2009.
- B.S. (Engineering Technology) from BITS Pilani in 2004.
- Diploma (Mechanical Engineering) from Seshasayee Institute of Technology Trichy in 1999.

8. IT Skills :

- Windows and MS Office
- SolidWorks, Catia V5 and Pro E
- Team Center & PLM
- Statistical Analysis in Excel

9. Key Skills :

- Research & Development
- IC Engine Design &Development (Diesel and CNG / LPG)
- Emission Testing
- Compressor design development
- Lubrication System Designing
- Cooling System Designing
- CNG / LPG dual fuel kit development
- ECU development for

10. Profile Summary:

- **Six Sigma-Green Belt Certified professional** with **over 25years**of comprehensive experience in **New Product Development encompassing Design Engineering& Optimization, Technology/Innovation Management, Project Leadership,Team Building and Budgeting & Cost Control**
- Made major contribution to the designs of new products and suggested improvements in existing products; researched and evaluated products, parts or processes for cost efficiency & reliability
- Identified long-term improvement opportunities to improve unit(s) profitability and optimize efficiency; boosted the **efficiency of AL6.65 BS1 Engine,** reduced Specific Fuel Consumption by 4%
- Provided**technical support**by participating in technical product reviews
- Skilled in **product development operations**; developed D1100 (CFM) – 350 (Psi) Tier 2 Compressor for **Compressor Development Projects for China market**
- Developed **Ignition and fuel Injection system for alternate fuel (CNG / LPG) engines**
- Possess hands-on expertise in **performance/durability evaluation** of engine components, engine test bed installation, data logging & acquisition, radial fan design & development, Cooling system design and air/oil separation system development
- Rich experience in managerial activities entailing technical leadership & guidance to the team members, planning, scheduling tasks, holding discussions with different functions & management for reviews & analysis, project progress monitoring and delivery as per quality norms

11. Career Timeline :

Organization	Department	Experience
Ashok Leyland	Research & Development	7 Yrs, 5 Months
General Motors	New product development	2 Yrs, 9 Months
Luminous Tele Infra Ltd.	Research & Development	2 Yrs, 3 Months
ELGI Equipment	Technology Development	8 Yrs, 7 Months
Entrepreneur – AbhiVijay Technologies Pvt. Ltd.	Research & Development	Around 5Yrs

12. Soft Skills :

13. Notable Accomplishments Across the Career :

- **Filed patent on " Air oil separation" in screw air compressors**
- Received appreciation at ELGI for high speed - critical project execution in 2016
- Represented ElgiCompressors at Hanover Expo-Germany in 2017
- **Presented research paper on "Influence of metal particles in compressor system" at ELGiTechnology day**
- Attended GD&T Training in General Motors USA and Canada in 2009
- Bagged Certificate of Appreciation for exemplary support to achieve organization goal in 2009 atGeneral Motors
- Titled as "National Qualifier" for Improve 2004 at Ashok Leyland
- **Delivered guest lectures at various engineering colleges**
- **Acted as a Project Guide for BITS – Pilani & Anna University students**

14. Project-wise Achievements:

a) Compressor Development Projects:

- Championed the development of:
- 1100 (CFM) – 350 (Psi) Tier 2 Compressor for China market
- Electronic Regulating System to suit electronic engine in compressor application
- Radial Fan for compressor application
- Administered design and optimization of:
- Air/Oil Separation System for Screw Air Compressors
- Cooling System for Screw Air Compressors
- Improved the transient cycle efficiency of screw compressors
- Managed Pressure Vessel design and certifications (SPVD and U stamp) as per ASME standards
- Conducted study on:
- Water Well Drilling Hammers for optimizing the compressor efficiency
- Engine and compressor application for water well and construction & mining drilling

b) Power Train Development Projects:

- ECU (Engine control unit) developed for fuel injection system for IC engine application
- Boosted the efficiency of AL6.65 BS1 Enginereducing Specific Fuel Consumption by 4%
- DevelopedAL 6.65 TCAC Engine for BS2 norms in 2005
- Successfully completed Hino BS2 Engine Field Validation for 1Lakh km on passenger vehicle applications (Chennai MTC Bus)
- Developed & validated Crank Shaft Rear Oil Seal with PTFE material
- Championed the development of Cylinder Head Gasket to reduce dead volumes in combustion chamber
- Conducted tolerance stack up analysis for valve to piston clearance with respect to valve timing (dynamic condition)
- Formulated strategies for alternate source development under Six Sigma Project (Green Belt)
- 4 axle (Octopus model) drive train design using Ackerman principle

c) Genset Development Projects

- InstalledDiesel Engine Test Bed of capacity up to 80kW with the consultancy of IIT – Madras
- Pioneered the optimization of 6kW China Engine for better efficiency & 12.5kW China Engine for CPCB2 norms
- Dual Fuel kit developed (including ECU) for Diesel gensets to run in Diesel and CNG, based on CPCB requirements.

15. Work Experience :

i) Since Aug'20 - Entrepreneur (M/S AbhiVijay Technologies Pvt. Ltd.)

- Managing R&D Team of 3 members for:
  - Indigenized, Dual Fuel kit developed with Woodward ECU and installed around 100gensets all around India.
  - Established Retro fitment center (RFC) for 3W and 4W CNG / LPG conversions operated successfully in two districts (Ramanathapuram and Chennai)
  - Indigenized Own ECU (Electronic Control Unit) developed for IC engine application.
  - Mono fuel CNG engine development for OEMs like Simpsons and Cooper corporation

ii) Dec'11- Jul'20 with ELGI Equipments Ltd., Coimbatore as Assistant General Manager (Team Leader)

Key Result Areas:

- Managing R&D Team of 6 members for:
  - Developing Diesel Powered Screw Air Compressor for domestic and international market
  - Designing and development of Cooling, Lubrication and Separation System for Air Compressors (sub system expertise)

iii) Oct'09-Dec'11 with Luminous Teleinfra Ltd., Chennai asAssistant General Manager – Engine R&D

Highlights:

- ManagingEngine R&D team ofmembers for:
  - Developing Diesel Powered Generators
  - Installing a test facility for diesel engine testing

iv) Jan'07-Sep'09 with General Motors Powertrain,Bengaluru, India as Team Leader – Engine Design

Highlight:

- Spearheaded Engine Design Team of 7 members for power train component design and tolerance stack up analysis

v) Aug'09-Dec'06 with Ashok Leyland, Chennai as Deputy Manager – Engine R&D

Highlights:

- Worked as a Team Member of Core Diesel Engine Development Team for design, development and testing
- Conducted successful Field Validation of diesel engines by effectively coordinating with teams involved

16. Certification/Trainings :

- Six Sigma-Green Belt Certification from ISI Kolkata
- GD&T and 3DCS Trainings
- Technology Refresher Module at PSG Tech, Coimbatore
- Product Familiarization Program
- Basic Engine Design at General Motors