# TUNGA TUZLACI

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## Sn. Mechanical Design Engineer

Innovative senior mechanical design engineer with award-winning designs. Extensive hands-on experience, 10+ patents, 40+ novel product ideas. Collaborate with multidisciplinary teams to handle the development of new products including creating aspects of form, function, ergonomics, drive train, UI, UX, automation, materials, and production. Track record of end-to-end ownership of product life cycle, from concept development to manufacturing. Successfully converting rough ideas into commercially viable products and team management on mechanical designs.

## Professional Experience

**Sn. Mechanical Engineer***, Oxefit Inc., Plano, TX 2021 – Current*

As a member of a multidisciplinary engineering team, played an important role in building an advanced gym-training system for professionals and home users.

- Designed, developed, and manufactured 20+ plastic injection, aluminum injection, extrusion, and casting parts that play significant roles in the system.
- The accessory organizing stand, sent to the customers with almost every machine sold, has been designed, developed, and produced. This stand is sold at a profit of 400% per unit.
- Developed unique and cost-effective solutions for complex problems.
- Provided 2D sketches and 3D renderings for innovative concept designs.

**Sn. Mechanical Design Engineer***, Saylite, Fleco Industries, Carrollton, TX 2020 – 2021*

Created new product lines and improve existing products. As a lead designer, designed, developed, and launched 10+ innovative lighting fixtures that made an impact on the market. Benefited the company with the best use of process improvement and cost reduction opportunities in manufacturing.

**Lead Design Engineer***, TETLab, Medical and Design Laboratory / Istanbul University, Turkey 2015 – 2017*

Collaborated with the largest hospital in the country (Istanbul University Hospital) in designing new medical devices. Led the design and development of surgical tools, bio-medical devices, and prosthetic apparatuses for specific challenges faced by medical staff, doctors, and nurses. Achieved 32 patent applications in that period.

- ❖ Awarded Toothbrush for Disabled, 2017
  Best Invention of the year, World Intellectual Property Organization (WIPO), Geneva Switzerland 2017
  Gold Medal Winner, KIWIE, Seoul South Korea 2017
  Designed for an entrepreneur to launch a new product in the market.
- ❖ Awarded Emergency Tracheostomy Set Design, 2020
  2nd Place, USIMP, (National Patent Fair and University-Industry Cooperation Congress), Turkey 2020
  An emergency tracheostomy set design that includes a specific scalpel and tube. Portable due to its small size and meets all the needs of paramedics and doctors in an emergency.

**Select Patented Designs**

- *Designed a Percutaneous Endoscopic Gastronomy (PEG)* kit that includes a flexible feeding tube along with an ultrasonic sensor that measures the amount of food in the stomach to avoid excessive feeding.
- *The blood glucose meter shell design* (LKG Ltd.Sti, Istanbul 2015) allows users to easily track their blood sugar levels and record the data on their doctor's cell phone. The infrastructure and prototype were designed and manufactured using the over-molded plastic injection method.

- *Unique urine bag design* (Bicakcilar Medical Devices Industry and Trade Inc. Istanbul 2017) measures flow and urine volume, consisting of a disposable bag and a measuring unit.
- *A child-proof medicine cap design*, (Sanovel Pharmaceuticals Industry and Trade Inc, Istanbul 2014) that can be opened in the same manner as caps currently in use. It does not violate any of the existing 30+ patents and provides advantages in manufacturing due to the use of standard silica gel capsules.
- *Wheelchair*: Lightweight, self-propelled, non-motorized wheelchair that allows people with spinal injuries to stand up and lie down up to 180° using their body weight and arm muscles. Patients increase their activity and mobility by 30% with this wheelchair.

**Mechanical Design Engineer***, Makine Tasarim LLC, Istanbul, Turkey 2004 – 2015*
Developed design solutions for complex and unique problems for clients in medical devices, machinery, and consumer product industries. Owned complete life cycle from initial concept development through design iterations to manufacturing a final product with attention to production, reliability, and maintenance requirements.

**Select Mechanical Projects / Automation: Designed and manufactured**

- An automated high-viscosity dough-filling machine with a reliable and accurate dosage system. Allows adjustment and optimization for different filling scenarios and delivers an improved filling rate of 1 cup/sec.
- A high-adhesion sticky material (slime) cup-filling machine with improved speed and accuracy. Successfully overcomes design challenges due to the nature of the material and limitations on the assigned space for the machine.
- Folding façade systems with insulated glass panels with improved mechanical support for high winds increased weight and superior folding mechanisms. All the components are designed according to FEA due to wind loads. Implemented in Nippert Stadium in Ohio, Cincinnati.
- A test machine with hydraulics, pneumatics, and mechanical components for skill testing and job certification. Allows a professional competence company to test candidates with pre-determined scenarios.

## Software

Solidworks | Catia V5 | Rhino 3D | AutoCAD | Matlab | PLC programming | Adobe CS | MS Office

## Education

- BS in Industrial Design - Mechanical Design Eng., METU, Middle East Technical University, Turkey
- BS in Physics (studied 2 Years), Faculty of Science, METU, Middle East Technical University, Turkey

## Certifications

- Geometric Dimensioning & Tolerancing, MBB Consulting, 2021
- Introduction to Biomedical Engineering, Polytechnic University / Coursera, 2021
- Mechatronics Specialization Program, Bosporus University & FESTO, 2016

## Academic Involvement

- Lecturer, Structure in Industrial Design Course at Kadir Has University,
  Department of Industrial Design, Istanbul, Turkey 2018 – 2019
- Lecturer, Design Studio Course at Anatolian University,
  Department of Industrial Design, Eskisehir, Turkey 2003 – 2004