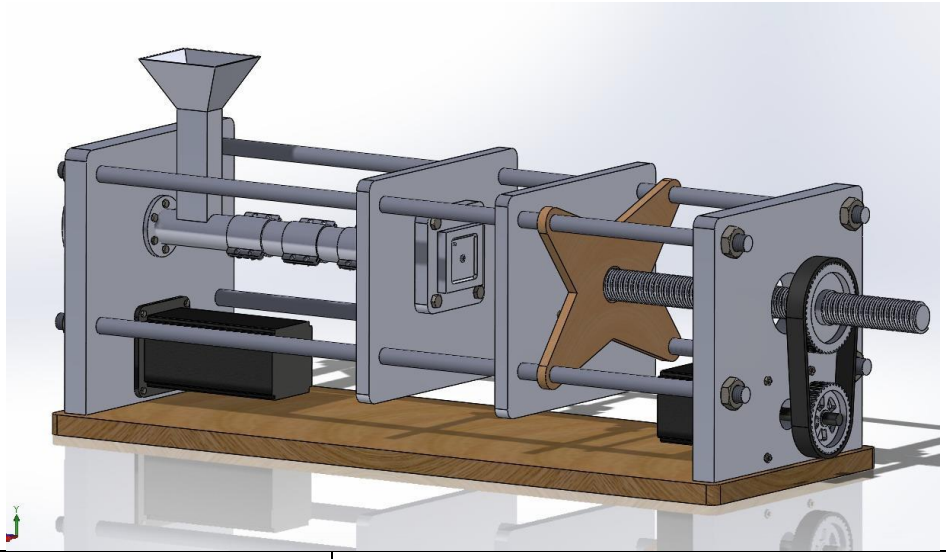
Final Year Project Showcase Batch-2018
Year 2022

Department: Automotive & Marine Engineering Programme: Automotive & Marine Engineering		
1	**Project Idea**	To design a semi-automatic small scale Injection Molding Machine for small businesses to increase productivity and reduce cost.
2	**Process**	• **Market Survey** to gather information on small scale Injection Molding Machine. • **Engineering Calculations** to select different machine components and justify our selections. • **3D CAD Model** to get a clear idea on how the machine is going to work and perform the given operation smoothly. • **Fabrication** develop Actual Assembly of machine according to CAD model. • **Calibration** done proper calibration of machine to get the desired results.
3	**Outcome**	Design and Manufacture Injection Molding Machine on the basis of research, market survey, calculations and simulations.
4	**Evidence (Theoretical Basis)**	Our project entails the design and fabrication of a small-scale injection molding machine that will be capable of forming reusable plastic into small useful products. The demand for low-cost plastic injection molding machines is growing every day in small-scale manufacturing. As a result, in order to meet this expanding need, our project will focus on the design and development of injection molding machines for small businesses. We started from the study of injection molding processes and then do detailed literatures review about injection molding machines. After that, we do market survey regarding IMM and learned how it works. Firstly we made a CAD the design of IMM for manufacturing of machine, then we use the design matrix method to select the components involved in IMM that are best fit for our design requirements. After that we make bill of material (BOM) for the machine and then purchased raw material from the market according to cad design and calculations. After that we have done machining of all parts, then we have done assembling and painting of machine. Then we worked on electrical and electronics side for the controlling and working of machine. After all this we have done testing and proper calibration, in order to meet our desired results.
5	**Competitive Advantage or Unique Selling Proposition** (Cost Reduction, Process improvement, Attainment of any SDG (Sustainable Development Goal), increase of market share or capturing new market or having superior performance over a competitor. In summary, any striking aspect of the project that compels the industry to invest in FYP or purchase it. Some detailed description is required in terms of how, why when what. You can select one or more from the following dropdown and delete the rest of them). Please keep relevant options, delete the rest of them, and correct the sequence	
a	**Attainment of any SDG** (e.g. How it is achieved and why it is necessary for the region)	**SDG#4: Quality Education** Our design machine will be use as a demonstration unit in lab of automotive department in the course of manufacturing engineering.

		SDG#7: Affordable and Clean Energy Our design machine is electric powered which require less maintenance and make it energy efficient and affordable.
b	**Any Environmental Aspect** (e.g. carbon reduction, energy-efficient, etc.)	No Noise pollution as compared to hydraulic powered machines.
c	**Cost Reduction of Existing Product**	Our Machine cost is approximately 90,000 PKR. In market this level of small scale automated machine will cost about 150,000 PKR.
d	**Process Improvement which Leads to Superior Product or Cost Reduction, Efficiency Improvement of the Whole Process** (e.g. What is the issue is current process and what improvement you suggests)	• In existing machine the first issue is that mold is not finished well. Mold polishing required for a best quality product. • One safety concern is that there is not any safety shield is installed around heaters whose temperatures are about 300 degrees. Safety shield must be installed.
e	**Expanding of Market share** (e.g. how it expand and what is the problem with the current market	This type of small scale automated injection molding machine is normally not available in local market. Small vendors easily buy this machine and increase production with cost reduction.
6	**Target Market**	Industries for Industrial automations.
7	**Team Members** (Names along with email address)	Muhammad Akber Anwar (akberanwar810@gmail.com) Syed Muhammad Shaharyar Alam (smshaharyaralam@gmail.com) Muhammad Muneeb Alam (mmuneeb.alam09@gmail.com) Syed Humza Najam (hamzanajam0@gmail.com)
8	**Supervisor Name** (along with email address)	Dr. Noman Uddin Yousuf (nyousuf@neduet.edu.pk)
9	**Pictures** 	
10	**Video**	https://drive.google.com/file/d/1aFTIft3Dktn1ExqaSSot8Ubj5zFFUzfL/view?usp=sharing