Project I Description

Project Name: **Smart Air-condition Servicing Machine**

Sponsor: **LAU – National Instruments – AGET**

Team Size: **3 MEE Students**

Project Overview

Refrigeration and air-conditioning industry in Lebanon still rely on the easy way of discharging refrigerant during service: purging. Ozone depleting substances used in the Refrigeration and Air-Conditioning industries and the need to recycle these refrigerants are behind the "Smart Air-condition Servicing Machine". Without such a machine, the operator would purge the refrigerant to the environment contributing to the increase in the ODSs. Without extensive experience in the field, the operator would purge further amounts if the problem wasn't diagnosed properly or if leaks are still available in the system. Furthermore, there exist contaminated blends of refrigerants in the market which is causing a lot of problems in the operation of RAC systems which is further contributing in the increase of quantities of ODSs. The proposed machine would solve all the above mentioned problems.

Project Areas and Majors needed

Mechanical design (1 MEE Student)	Instrumentation (2 MEE Student)

Project Deliverables

The machine should do the following:

- Identify refrigerant type and recover for decommissioning/reclamation in case contaminated.
- If refrigerant is pure then it is automatically recovered, recycled, the system is flushed, vacuumed, and charged (as per a preset task selection)
- Before charging the system is automatically checked for leakage to prevent ODS from leaking.
- After the successful recharge of the system, it is diagnosed for possible problems. If problems exist, the machine would explain the proposed solution based on feedback from sensors and according to experience and scientific principles.
- The students should design, build, and test the machine