

## Project: Vacuauto



Knowing the energy diverted to a simple task or cleaning floors and sweeping, our group channelled our efforts in designing a device that could do all that and more. 'Vacuauto' we named it, being the combination of the effectiveness of vacuuming and the effortless ease of automation. With minimal wiring, two layered PCBs and best of all, only the usage of one PIC, our group has designed in a few weeks, one of the most robust projects of this semester.

Having 4 modes, Vacuauto can efficiently clean till one presses the reset button, work on a desired area by moving in consecutive smaller squares, continue its operations for a preset time limit or simply run on a remote control if the user opts it to. Having these varieties of functions enables one to appropriately use the machine when needed, in a manner best associated with the need. By having the 'Remote Control' feature, Vacuauto rivals current market robot Vacuum cleaners as one can have full control over the motion of the machine and move it to their desired co-ordinates without having to wait for the internal algorithm to do so.

Equipped with Sharp IR sensors, the Vacuauto can detect obstacles in front and around it, enabling it to avoid them by reversing and moving away in a random direction and angle. It also has an in built, self designed water sensor that it located at the anterior of the machine. The sensor helps to detect the presence of fluids and prevents the Vacuauto from traversing in them. It also activates a Buzzer which alerts the user of the presence of water.

Using the system of 'one side forward, other reverse', Vacuauto can manoeuvre itself in the smallest distance travelled. Turning left or right when faced with an obstacle, is done at the precise moment and at the very spot the Vacuauto is positioned at. The motors installed in the movement subsystem are of high torque calibre giving the machine high load resistance and unimpaired movement.

Vacuumping is done impressively by the Vacuauto due to its well calculated Vacuuming subsystem. Two blowers positioned at the front of the machine direct dirt and other refuse towards the centre and the Vacuums then suck in that well aligned trail. Having this system targets a large area and even if there is some left behind, be assured Vacuauto gets it on the second round. Cleansing of the system is near effortless as one has to simply open the front attachments of the vacuum cleaners and clear the dirt present.