**Project Details:**

Drone is an aerial quadcopter with four rotors. It is also known as unmanned aerial vehicle, UAV. When surveying landscapes highly accurate drone navigation is very crucial. Drones were mostly used in for military purposes because they can fly as long as they have fuels and doesn’t cause any sort of mechanical difficulties either. However, in the past few years drone has been more used for recreational purposes and commercial and motion picture filmmaking. UAV drones are most of the time assembled with different technology such as GPS, laser (for commercial and military purposes) and with infrared cameras too.

Our project is a multifunctional drone, which is used to monitor and record the pollution density in the air in a certain area. This multifunctional drone will autonomously drive along and collect data for analysis of the pollution density in certain areas of Dhaka city in Bangladesh. When surveying landscapes highly accurate drone navigation is very crucial. So this multifunctional drone works as it navigates itself to the designated location with the help of the GPS technology equipped in it up to a different predetermined height every hour and from there detect the pollution density (the concentration of all the air pollutants present), only when the value is above the recommended threshold density and then the drone automatically filtrates the air surrounding the landscape with the suction technology of Hepa-Mine air filter. At last it flies back down to the place on the ground from where it took its flight off.

Different sensors for different purposes are assembled in drones. For instance, in order to detect the place the drone is navigating specific position and movement sensors are used which give us the particular information. The system is assembled with the pollution detecting sensor in it for the actual purpose, so that we can measure the excessive pollution above the threshold value. The quadcopter is also designed to take photos and videos of the certain location it would monitor so that later after analyzing the data certain actions could be taken place considering the photos and videos made, in order to lower the risk of pollution in that area. For instance if the area monitored has a high pollution density and then from the pictures taken or the video made we can know whether that area is a busy road where we can limit the causes for increasing pollution or whether it is a quieter area where different initiative can be taken to lower the risk. The pollution detector sensors used are the gas sensors: MQ135, MQ2 and MQ7. Also high precision particulate matter (PM10 and PM2.5) dust sensors are used. We plan to statistically analyze our data collected from the drone using open CV and later plan to compare those data with more administrative values.

We also plan to add mind control system in this multifunctional drone. Drones are controlled by remote ground control systems and we planned to work on making it navigate with our mind power strength using the BCI technology. The BCI technology also known as the brain computer interface will help us turning on and off the drone i.e. flying the drone from the ground to a certain height in air by our mind strength.