

Application of Drones in New Town



November 2022

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Drones are Unmanned Aerial Vehicles (UAVs) or Remotely Piloted Aerial Systems (RPAS) that are controlled either by a pilot on the ground or with the help of technology. Drones were initially used for defence purposes, however, with significant reduction in cost, size and price of drones, they are presently being widely used in non-military commercial purposes.

Drones in New Town Kolkata

In New Town drones were introduced during the pandemic for the purpose of crowd surveillance. Subsequently, drones were used in the city for making public announcements and raising awareness regarding (a) COVID protocols, (b) dengue and malaria prevention, (c) various ongoing State Government schemes and initiatives, and (d) public announcements on other miscellaneous topics, etc. Presently, drones are also being extensively used by the authority in undertaking surveys and for monitoring purposes. Use of drone technology for surveying and monitoring has ensured availability of accurate geo-spatial information to the officials of New Town Kolkata Development Authority (NKDA) for decision making and undertaking necessary actions for day-to-day operation and maintenance. It has also reduced the overall time and cost involved in undertaking such surveys.

Drones in Monitoring Overcrowding during Pandemic

In New Town Kolkata, use of drones for public use commenced during the pandemic. Following the outbreak of the pandemic, the city authority of New Town introduced drone surveillance in the city to monitor overcrowding in the markets (both formal and informal), green verges and other prominent areas of New Town. Drones were used to monitor 14 markets (10 community markets and 4 informal markets), 48 green verges and prominent areas of New Town like Akansha More, Candor, Geetanjali Park and areas near Amity university and City Centre 2. Additionally, the drones were used to survey those areas where an alarm regarding overcrowding was raised by the citizens through (a) the 24X7 help line of New Town or (b) through Neighbourhood Volunteering Groups constituted during the pandemic. Drones operated for 5 hours a day in two shifts – from 6.30 am to 9.30 am (morning) and from 5.00 pm – 7.00pm (evening). On noticing overcrowding in any area, the drone team notified the NKDA authority who in turn informed the Bidhannagar police of the same. The police ensured that crowd was promptly dispersed from the area. With the introduction of drone surveillance, NKDA could effectively monitor the entire area under its jurisdiction and ensure adherence to the protocols of social distancing in New Town. It was noted by the police that with the introduction of drone surveillance there was marked improvement in terms of practicing the protocols of social distancing in almost all areas of New

Town, particularly near Lohapool, 18 Tola Market, Akansha More, Shapoorji market and all green verges of the city.



Shapoorji Market – Before the introduction of drone surveillance



Shapoorji Market – After the introduction of drone surveillance

Drones for making Public Announcements

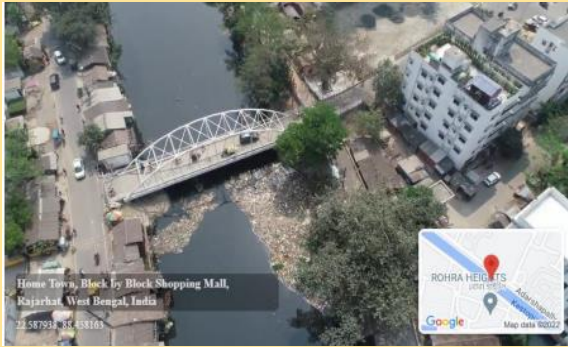
Drones in New Town are also used in making public announcements and spreading awareness regarding (a) COVID protocols (b) Dengue and Malaria prevention and (c) various State Government schemes and programs like *Lakshmir Bhandar*, Swastha Sathi, Student Credit Card, etc. The city authority also uses drones for making other miscellaneous announcements.

Drones for Survey and Monitoring

The various surveys and monitoring work being undertaken using drone technology in New Town Kolkata include,

A. Drones in Surveying Canals in New Town

New Town Kolkata has a network of unlined canals (length 46 Km) that play a key role in the city drainage and ground water recharge. The city authority of New Town leverages drone technology to periodically survey and monitor the canals located in its jurisdiction. If any obstructions in water flow in the canal is noted due to (a) indiscriminate dumping of solid waste (b) encroachment, or (c) eutrophication, a report is submitted to the concerned engineers of NKDA and WBHIDCO, who ensures prompt action in this regard and removal of the obstructions. Introduction of drone in survey of canals has greatly reduced the survey time and ensured better upkeep and maintenance of the canal network of New Town.



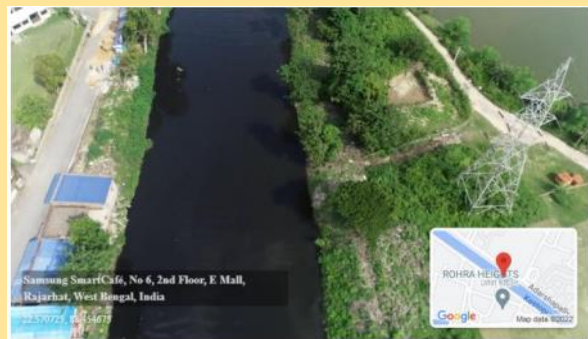
Bagjola Canal -Surveyed on 23.03.2022



Bagjola Canal -Surveyed on 30.07.2022



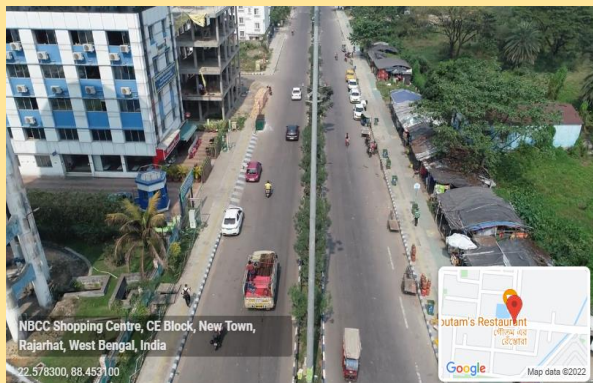
Kestopur Canal – Surveyed on 21.03.2022



Kestopur Canal – Surveyed on 30.07.2022

B. Drones in Surveying Encroachment Zones

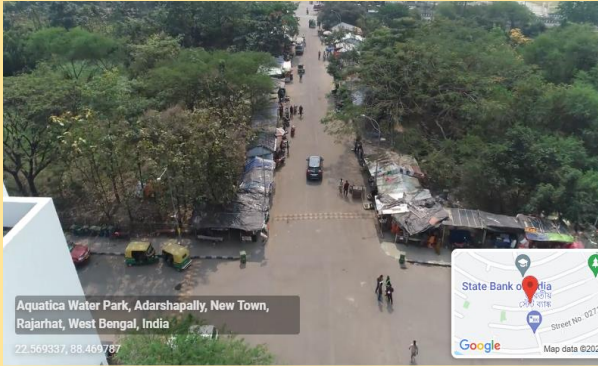
The city authority of New Town is also using drones to monitor and document existing zones of encroachment in New Town. Periodic surveys are conducted in all the three action areas, namely, Action Area I, II and III. During the survey, if encroachments are noted, a report of the same is submitted to the authority. The designated encroachment team of the estate management division of NKDA takes appropriate action regarding the unauthorized structures based on the geospatial survey report submitted.



Aerial View – Tank no. 3 in Action Area I



Street View – Tank no. 3 in Action Area I



Aerial View – 18 Tola Market in Action Area I



Street View – 18 Tola Market in Action Area I

C. Drones in Surveying Road Condition

New Town presently has a network of 201.35 km of road network including Major Arterial Roads and Internal Roads. While the MAR is being maintained by WBHIDCO, NKDA is responsible for upkeep and maintenance of all internal roads. The city authority of New Town presently deploys drones to survey the entire road network of the city and identify spots/stretches (with accurate geo-coordinates) that require immediate attention of the authority regarding repair and maintenance. Owing to the use of drones, the time required for survey has been significantly reduced.



Drone used to identify road stretch in CE Block, AA I in New Town that required immediate attention of the authority



Drone used to identify road stretch near Novotel Hotel, AA I in New Town that required immediate attention of the authority

Recently, drones were also deployed to by the city authority to take stock of the existing road conditions and *identify damaged road stretches including damaged footpaths and cycle tracks* that required immediate attention of the authority during/post the installation of gas pipeline (executed by Bengal gas Company Ltd.) in New Town.



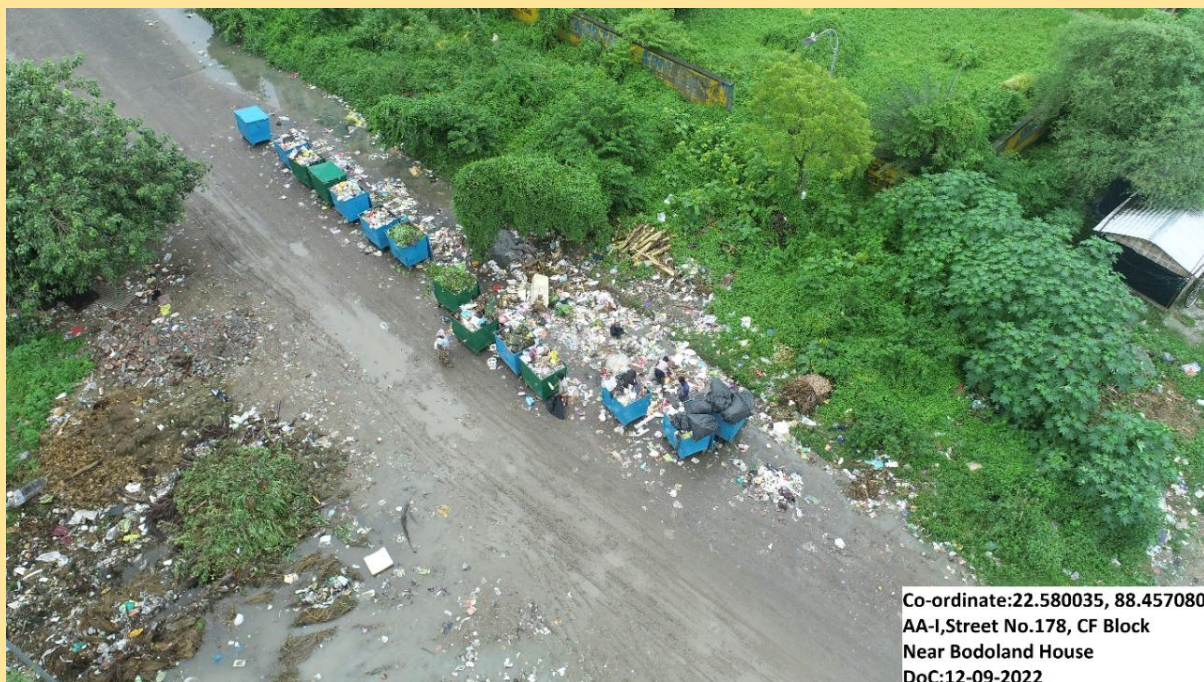
Identified stretch near Alliah University post installation of Gas Pipeline



Damaged cycle tracks post installation of Gas Pipeline in CA Block, Action Area I

D. Drones in Surveying Black Spots related to Solid Waste Management and Dumping of Construction Material

Drones are also being deployed to identify black spots or areas where solid waste is being illegally dumped in New Town. As the drone survey provides accurate coordinates of the dumping sites, prompt action regarding removal of solid waste can be ensured by the authority.



Waste Dumping Sites in New Town

In New Town, drones are also being deployed to periodically monitor dumping of construction material on the streets of New Town. If indiscriminate dumping of construction material is found during the time of survey, a report is submitted to the concerned department/officers in

charge in NKDA, who ensure issuance of notices for removal of construction materials to the respective construction site owners.



Drone Survey to identify dumping of construction materials in CE Block, Action Area I



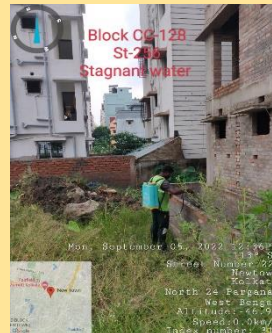
Drone Survey to identify dumping of construction materials in DC Block, Action Area I

E. Drones in Surveying Pockets of Water Stagnation

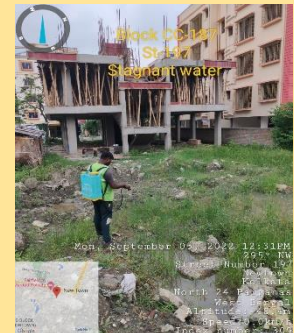
The authority has leveraged drone technology to identify pockets of stagnant water in NKDA area which are also potential breeding grounds for mosquitos. Special attention is given to monitoring of under construction sites. If stagnant water is detected at any construction site during drone survey, the same is reported to the NKDA vector control team who in turn ensures that the spot is immediately sprayed with larvicide. Thereafter, notice is issued to the owner of the site to take necessary action. It is important to mention that, in inaccessible areas drones were also used for spraying of larvicides.



Drone Surveillance for identifying water stagnation sites



Spraying of larvicides in the identified sites by NKDA Vector Control Team



F. Drones Surveillance to Curb Stubble Burning

In New Town, drones are also used to curb the air pollution caused by stubble burning that becomes a concern for the citizens of New Town particularly during winter. During regular surveillance by the drone team, if stubble burning is noted in area, an alert is sent to concerned NKDA officials, who ensures that the fire is immediately put off. Recently, a mapping of the hotspots of stubble burning has also been undertaken by the authority. From the current year, stricter drone surveillance is planned to be undertaken in these spots/zones.



Drone Surveillance for detecting Stubble Burning in New Town NKDA Team at work for putting off the fire

G. Drones in Monitoring Waterbodies in New Town

The city authority of New Town has also used drones to map the waterbodies located in the area under its jurisdiction. A database of the waterbodies including their geo-coordinates, area, etc are maintained by the city authority. Drones are also used to regularly monitor the condition of these waterbodies.



Mapping of Waterbodies in New Town using Drone Survey

Thus, the city authority of New Town has leveraged drone technology in day-to-day monitoring, overall maintenance of various resources and assets located in its jurisdiction and discharging of the municipal functions, thereby improving the overall quality of life of the residents of New Town.

