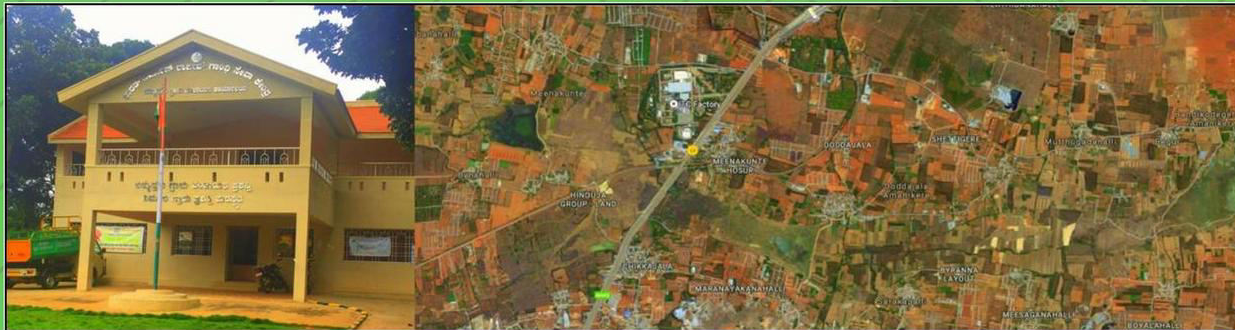


Georeferenced Aerial Survey of Panchayat (Village Limits and Assets) –A Case Study



Georeferenced Aerial Survey and Asset Analysis

Georeferenced aerial surveying can be effectively used to collect, store and analyze geospatial data of Panchayat assets. For example - overhead and mini water tanks, schools, anganawadis, hospitals, godowns, roads and their lengths, panchayat owned buildings, land area measurements, property demarcations etc in each village .

With the use of the GIS and visual data collected, it is possible **to visualize and understand the geographical context of an asset and improve the efficiency of asset management** in order to improve decision making and effectively monitor and implement programs like **MNREGA, Swachh Bharath, Digital India, PMGSY** (Pradhan Mantri Gram Sadak Yojna), **SAGY** (Sansad Adarsh Gram Yojana) and **MPLADs**.

This data can be integrated with Government Portals in the form of interactive dashboards thus enabling e-Governance and facilitating the coordination of exchange and sharing of geospatial data between various government stakeholders and also the general public.

The following slides highlight the case study of one of the panchayats for which we have conducted such a survey.

Doddajala Panchayat is located in Bangalore North Tehsil of Bengaluru district in Karnataka, India. It is situated 30 km away from sub-district headquarter Bangalore North and 30 km away from district headquarter Bangalore.

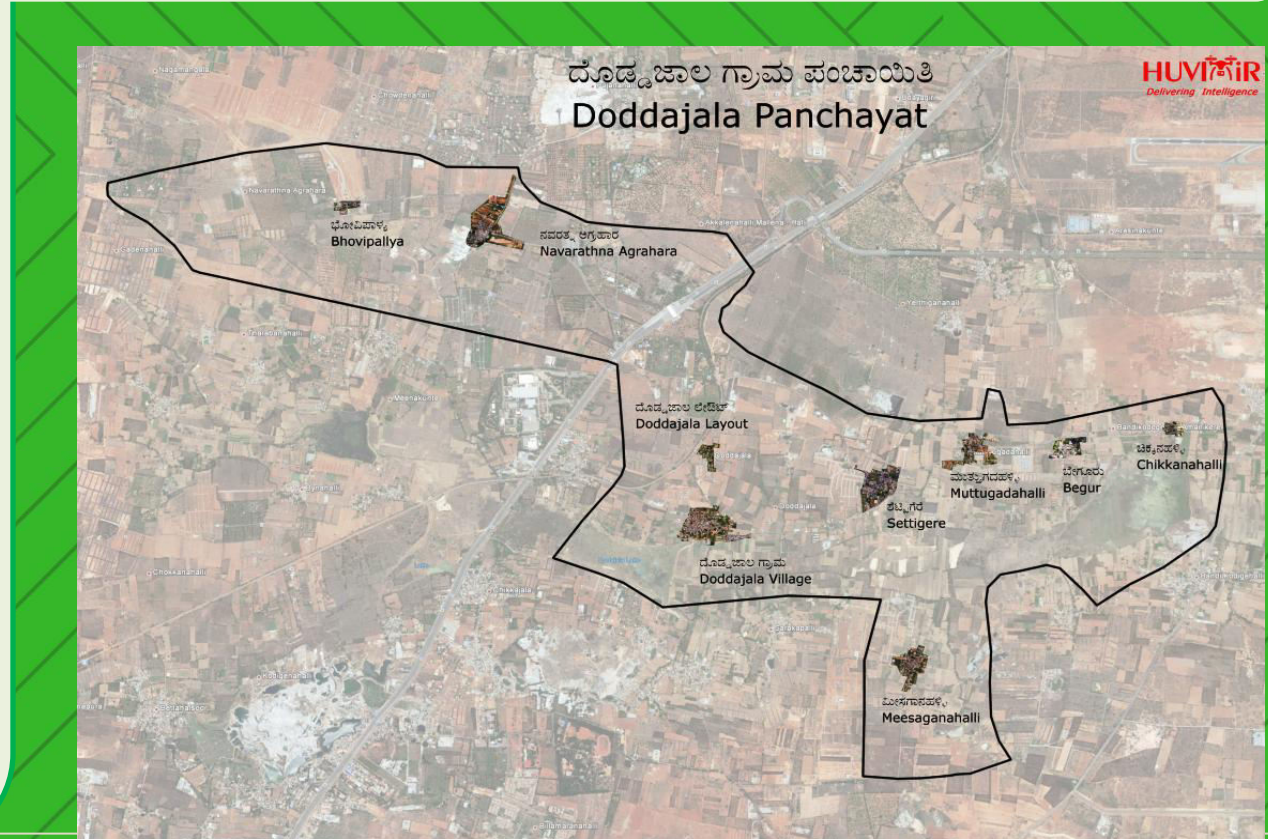
The total geographical area of village is 305.42 hectares.

There are about 400 houses in Doddajala village.

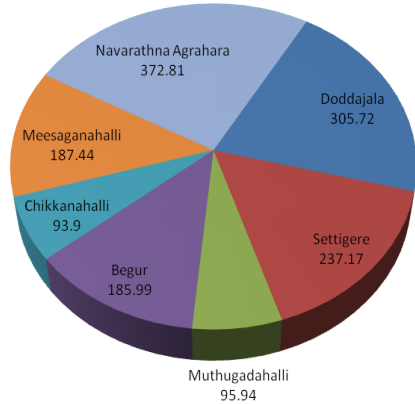
Devanahalli is nearest town to Doddajala which is approximately 16 km away.

There are 7 Villages under Doddajala Panchayat –

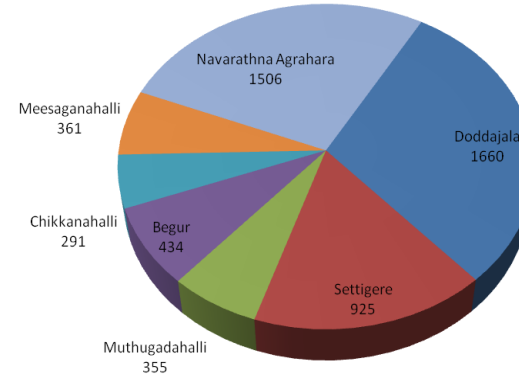
- ❖ Doddajala
- ❖ Navarathna Agrahara
- ❖ Settigere
- ❖ Muthugadahalli
- ❖ Begur
- ❖ Chikkanahalli
- ❖ Meesaganahalli



Village Area Wise Distribution (Acres)



Village Population Wise Distribution



Village	Total Area (Hectares)	Total Population
Doddajala	305.72	1660
Navarathna Agrahara	372.81	1506
Settigere	237.17	925
Muthugadahalli	95.94	355
Begur	185.99	434
Chikkanahalli	93.9	291
Meesaganahalli	187.44	361
Total	1478.97	5532

Doddajala Gram Panchayat assigned **HUVIAIR Technologies** to do an aerial survey of the village limits of each village in the Gram Panchayat.

The objectives were:

- Capture a high resolution geo-referenced top view image of each village
- Place each geo-referenced image on Google Earth
- Measure the area of each village limits
- Count and Geo Tag all the Assets of each village
- Measure road lengths and areas (Main roads, concrete roads, tar roads, kutcha roads, village areas)
- Analyze the data acquired

THE FOLLOWING IS A SAMPLE REPORT FOR ONE VILLAGE.

HUVAIR TECHNOLOGIES HAS GENERATED REPORT FOR ALL 7 VILLAGES OF THE PANCHAYAT

Doddajala Village

Doddajala is located in Bangalore North Tehsil of Bangalore district in Karnataka.

It comes under Doddajala Panchayat and covers **305.72** Hectares of land.

It has a total population of **1660**.

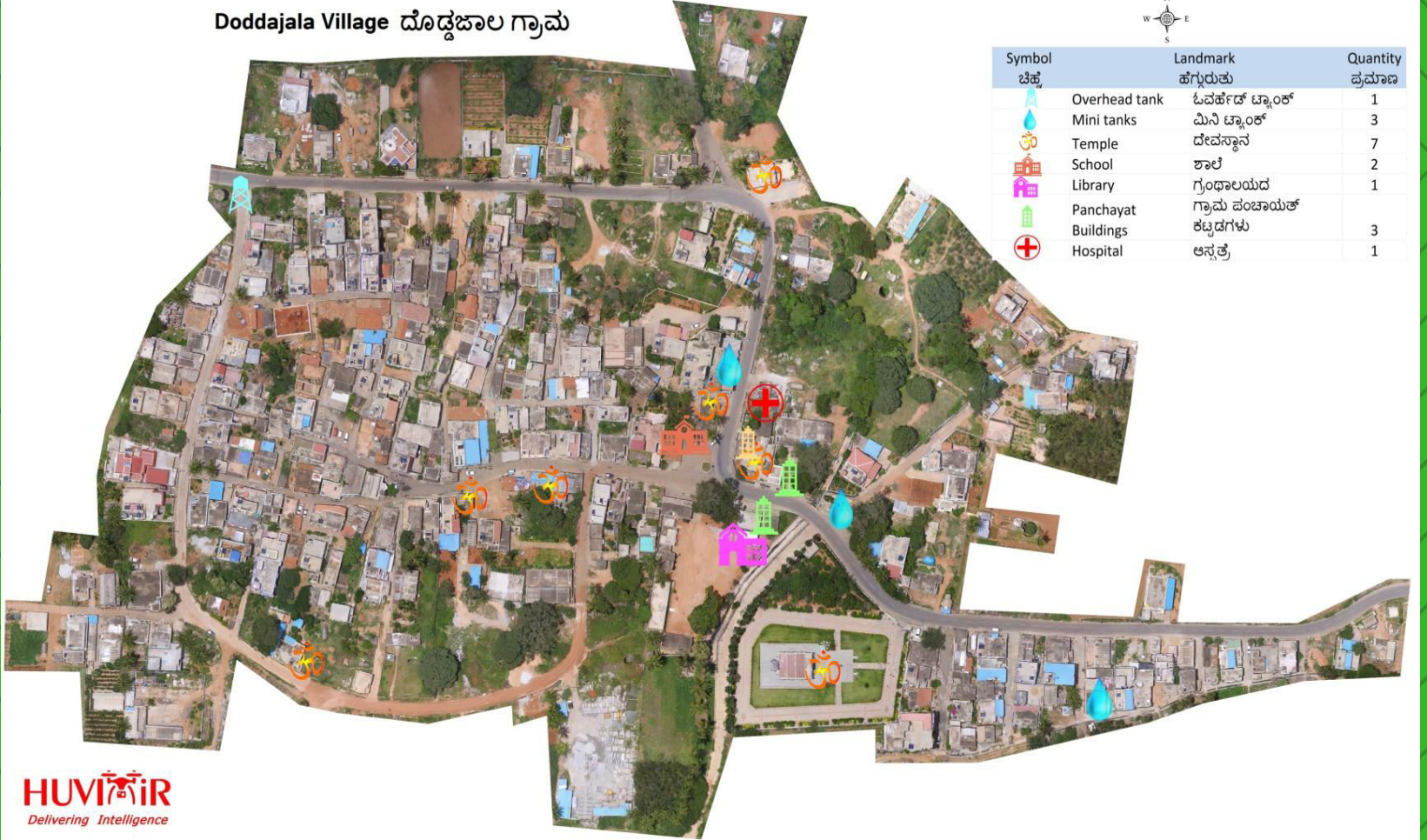


Doddajala village standalone image



Assets of Doddajala Village

Doddajala Village ದೊಡ್ಡಜಾಲ ಗ್ರಾಮ



Ground photographs of Assets of Doddajala village



Doddajala Panchayat Office

Ground photographs of Assets of Doddajala village



Doddajala overhead tank



Mini tank 1



Mini tank 2



Mini tank 3

Ground photographs of Assets of Doddajala village

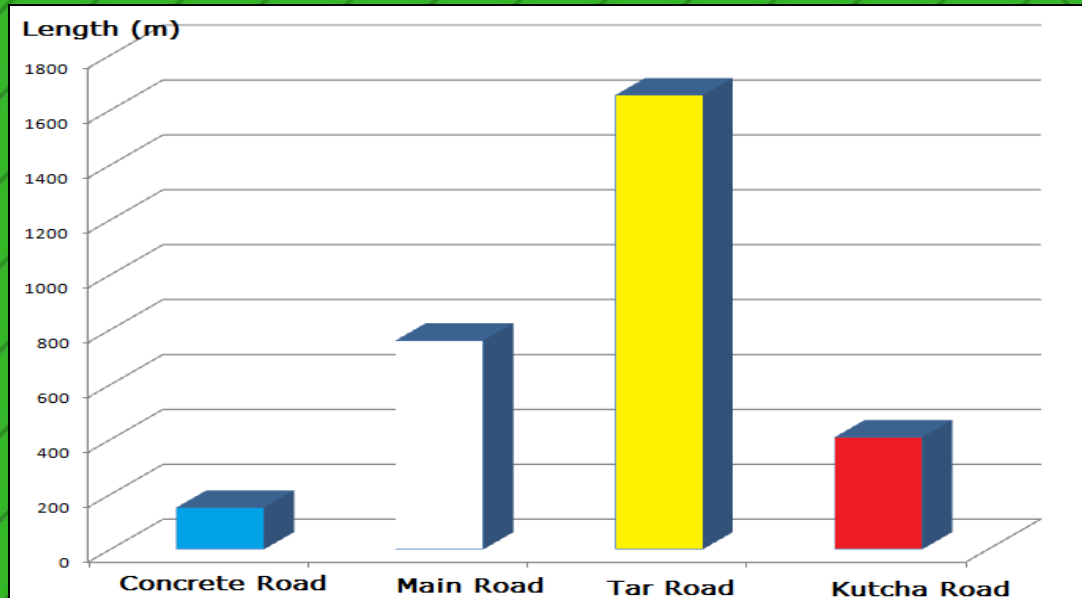


Road length Measurements

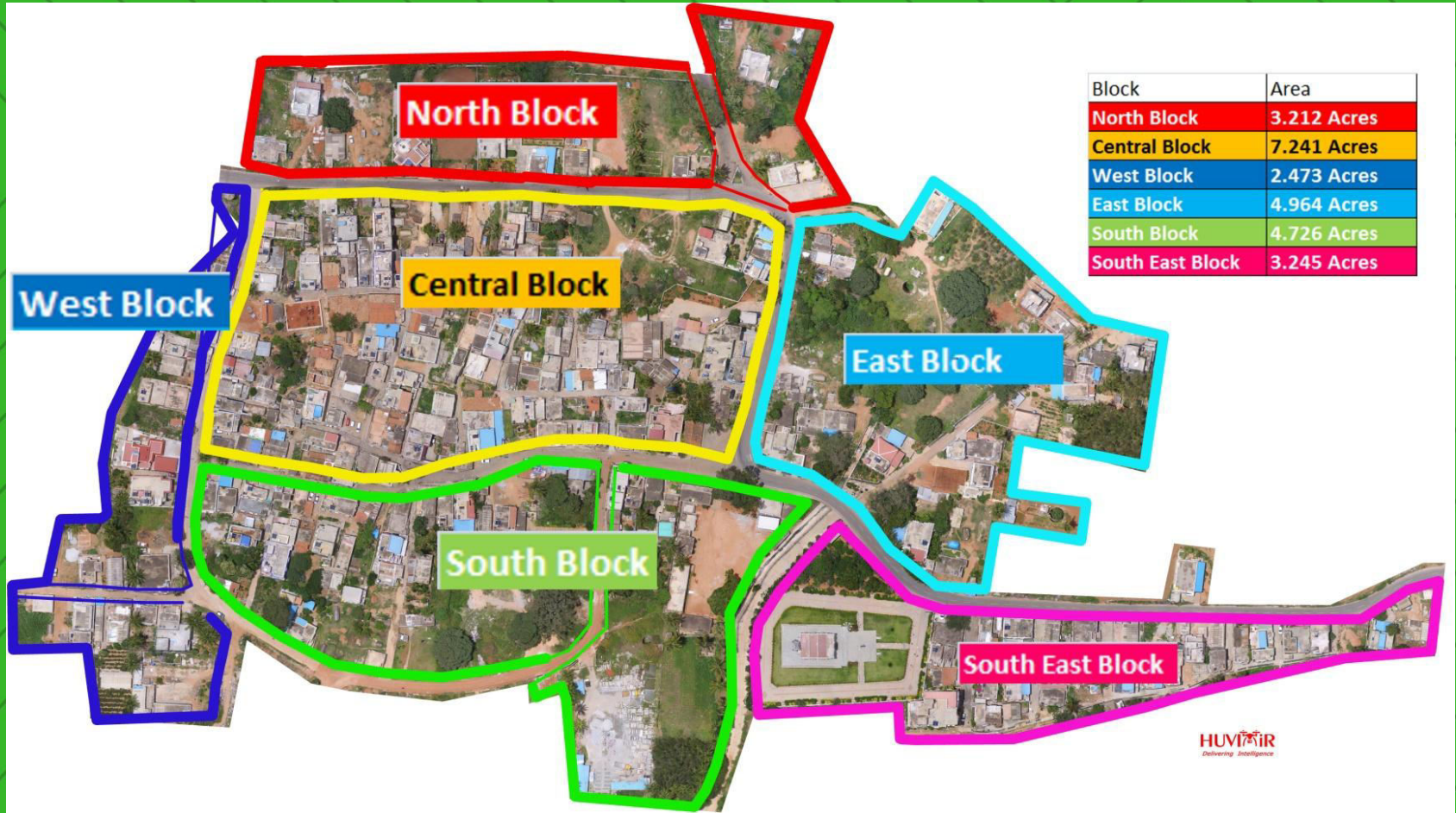


Road length Measurements

Parameter	Calculation	Measurement
Boundary area		28.9 acres
Length of concrete road		152m
Length of Main Road	710+61	771m
Length of Tar road	249+253+76.3+139+46.5+76.1+141 +204+47.5+52.3+46.4+64+55.8+15.4 +56+102+29.6	1653.9m
Length of Kutcha road	166+35.6+140+44.7+21.8	408.1m



Area Measurements of Village Blocks



In Summary

All Assets Geo-tagged

All the Assets are geo-tagged with their latitude and longitude and the client is provided the complete report.

Sample screenshot -

	A	B	C	D
1	Description_of_location	Location_latitude	Location_longitude	Location_altitude
2	Doddajala water tank	13.177574	77.651197	911.7358398
3	Doddajala temple	13.175789	77.651262	913.5461426
4	Meesaganahalli mini tank 6	13.166487	77.667758	898.3054199
5	Meesaganahalli mini tank 5	13.165823	77.6686	895.1882324
6	Meesaganahalli anganvadi	13.165841	77.668577	895.7556152
7	Meesaganahalli mini tank 3	13.165865	77.668933	905.2390137
8	Meesaganahalli temple	13.165015	77.668523	906.2351071

In Summary

Lengths of roads

Total Length of concrete road in panchayat.	3.6 Kms
Total Length of Main Road in panchayat.	13.4 kms
Total Length of Tar road in panchayat.	5.9 kms
Total Length of Kutcha road in panchayat.	2.9 kms

Area utilization in panchayat

Total Area with layout and houses in panchayat.	153.5 Acres
Total Area under agriculture in Panchayat.	3,498.5 Acres

Additional Data Provided – Digital Elevation Model and Contour Map

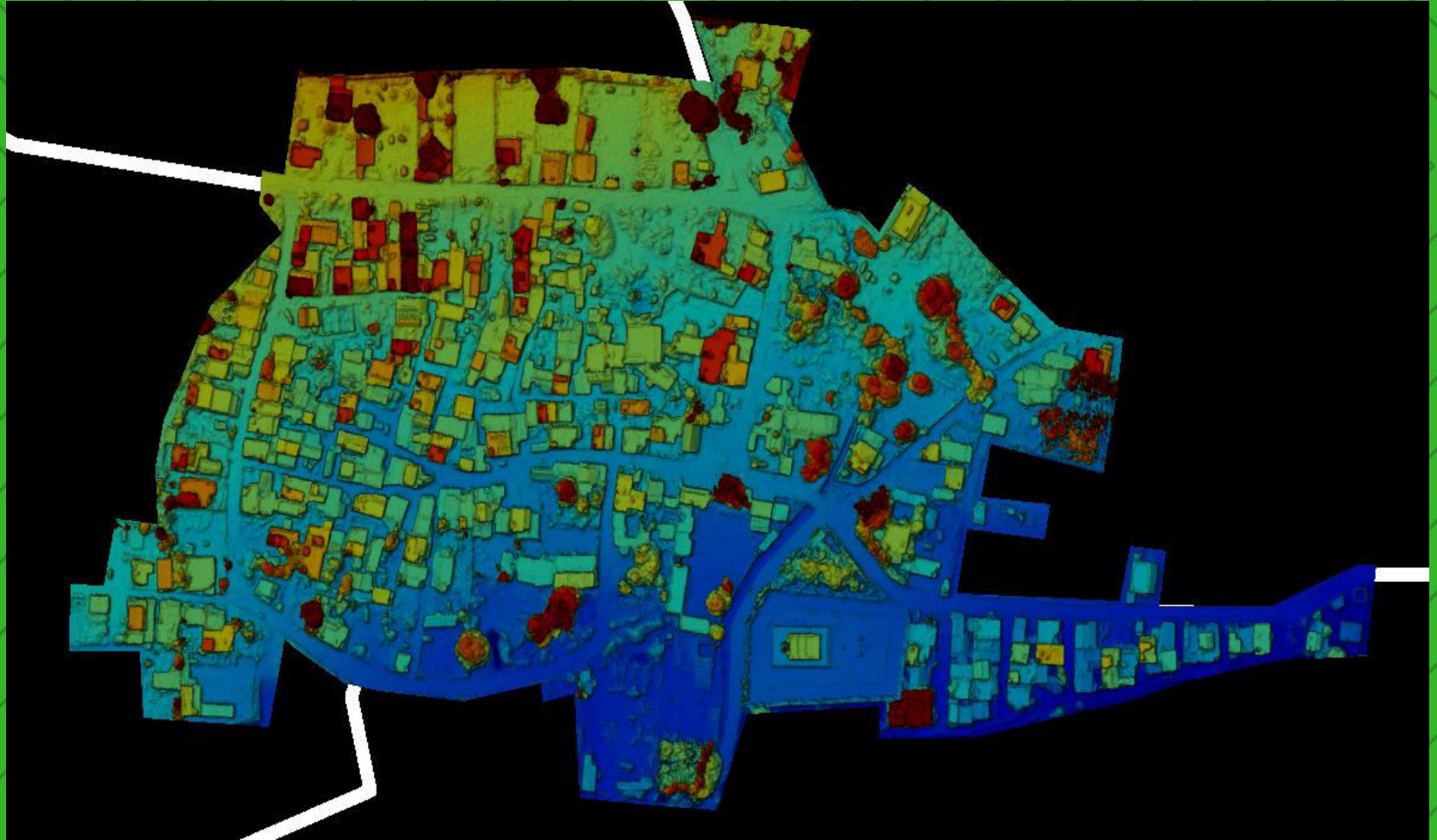
Slope and altitude are important terrain parameters for designing **rainwater harvesting structures** and **drainage systems** across the villages.

The digital elevation model is used for generation of slopes which classifies the entire study area in different categories of slope ranges.

The ranges so classified help in calculating the amount of water flow in that particular region.

The Panchayat is provided with a digital slope and elevation model in electronic format.

Digital Elevation Model of Doddajala village



Contour Map of Doddajala village



About HUVIAiR

HUVIAiR Technologies is an Unmanned Aerial Vehicles Technology Services company based in Bengaluru.

We have expertise in conducting Geo-referenced aerial surveys and capturing intelligent data to produce quality outputs as required by our clients.

Our services are used by clients from various sectors such as Renewable energy developers, Governments, Commercial builders, Corporates, Mining/quarrying industries, Oil and gas sector, NGOs, Farmers, Planters, Public sector units etc.

HUVIAiR believes in delivering solutions to customer tailored to their needs, with a clear focus on quick turnaround time and providing unmatched value for money. Its founders have a mix of experience in Photogrammetry, Computer Vision, Surveying, Computer Technology, Manufacturing and Renewable Energy.

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