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Revolutionizing Revenue Streams: Harnessing Drone Technology for Seamless Meter Reading in Disaster Zones

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Introduction

Utility companies play a vital role in providing essential services to communities, and their revenue streams are intrinsically linked to accurate meter readings

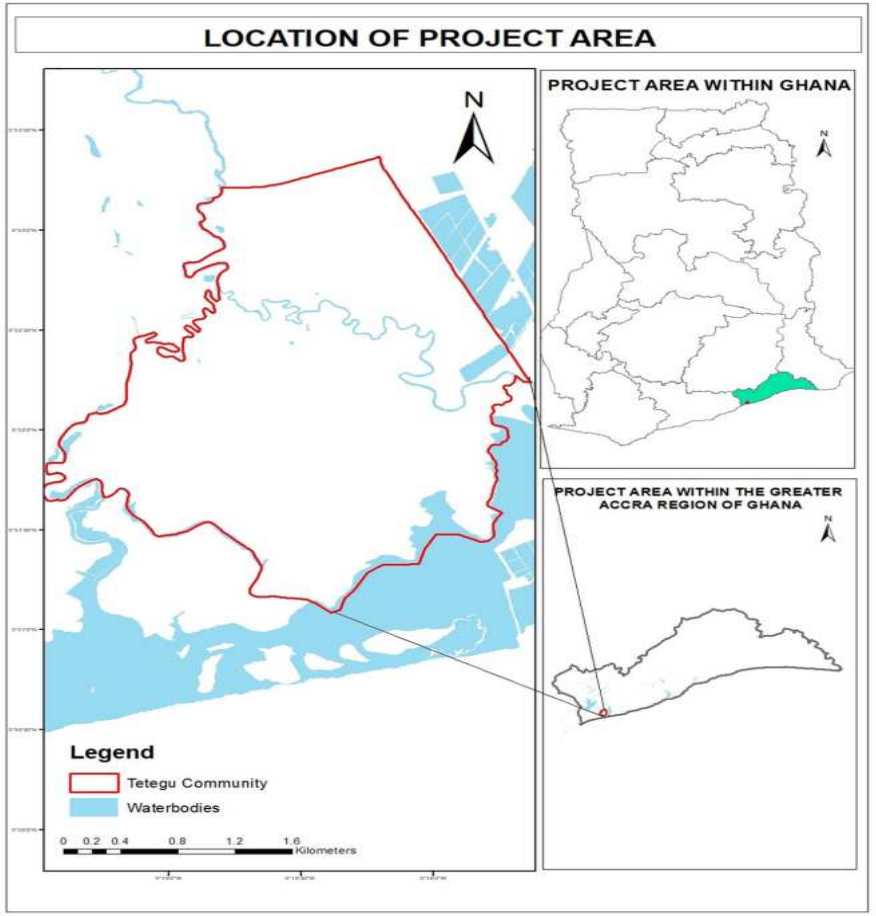
In the aftermath of natural disasters or emergencies, traditional meter reading methods face substantial obstacles, such as restricted access to affected areas, compromised safety for field personnel, and logistical difficulties

These challenges can lead to delays in billing cycles, revenue losses, and potential customer dissatisfaction.

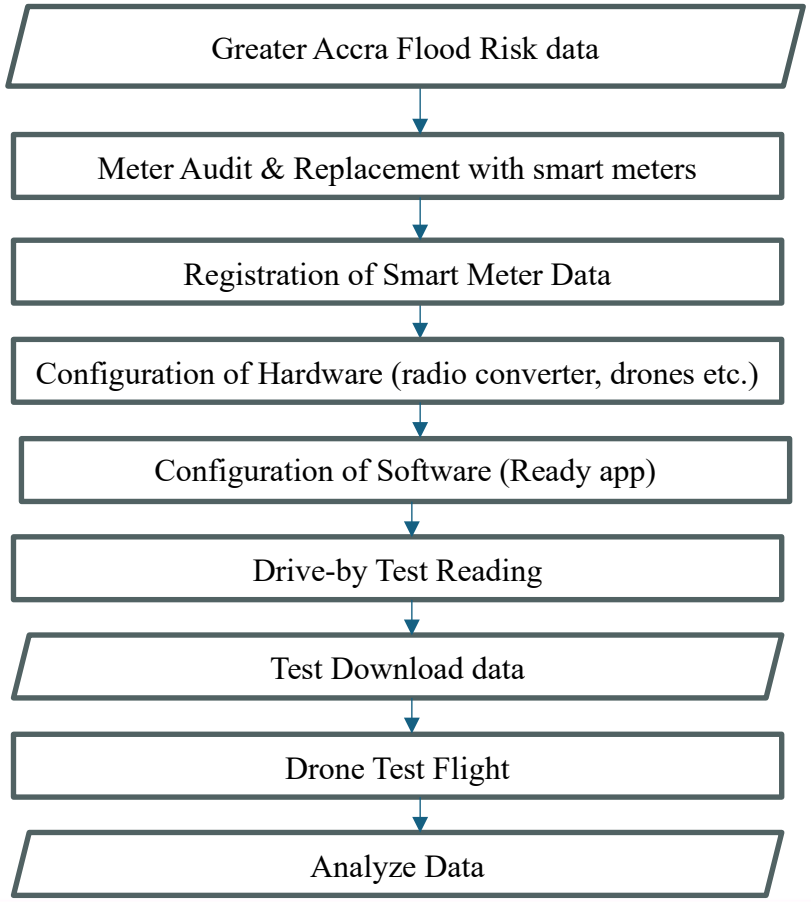
This study focuses on Tetegu in the Greater Accra region, which is particularly vulnerable to flooding due to its coastal location and low-lying nature.

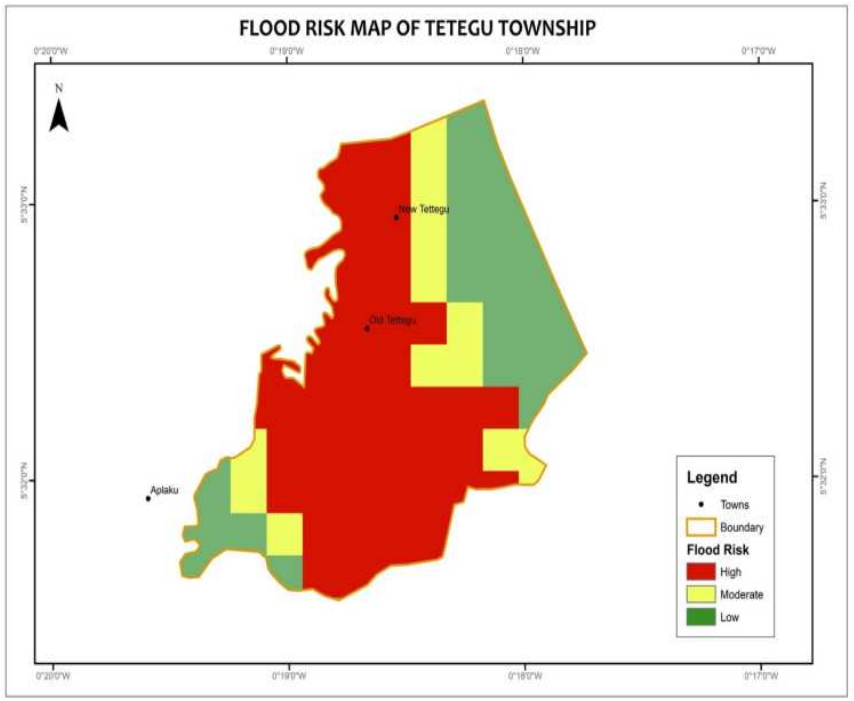
It aims to provide a comprehensive roadmap for the successful implementation of drone-assisted meter reading in the Accra region, addressing infrastructural, regulatory, and technological considerations

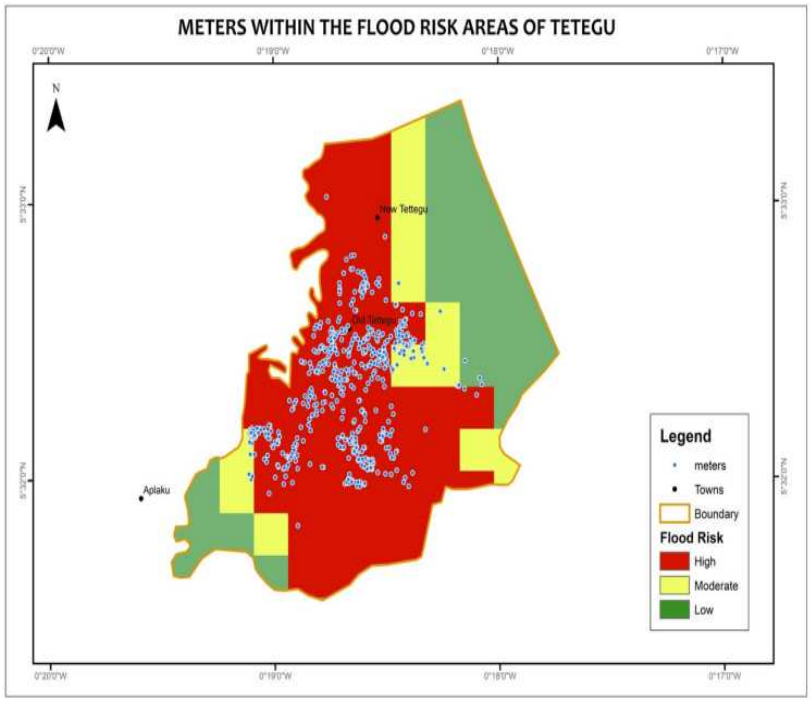
Study Area

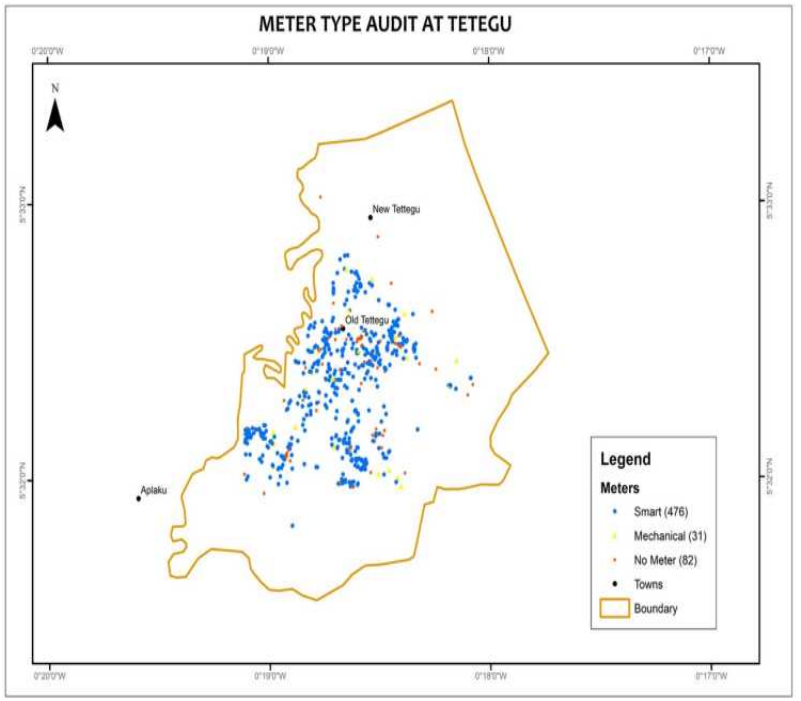

LOCATION OF PROJECT AREA
N
PROJECT AREA WITHIN GHANA
PROJECT AREA WITHIN THE GREATER ACCRA REGION OF GHANA
Legend
Tetegu Community
Waterbodies
0 0.2 0.4 0.8 1.2 1.6
Kilometers

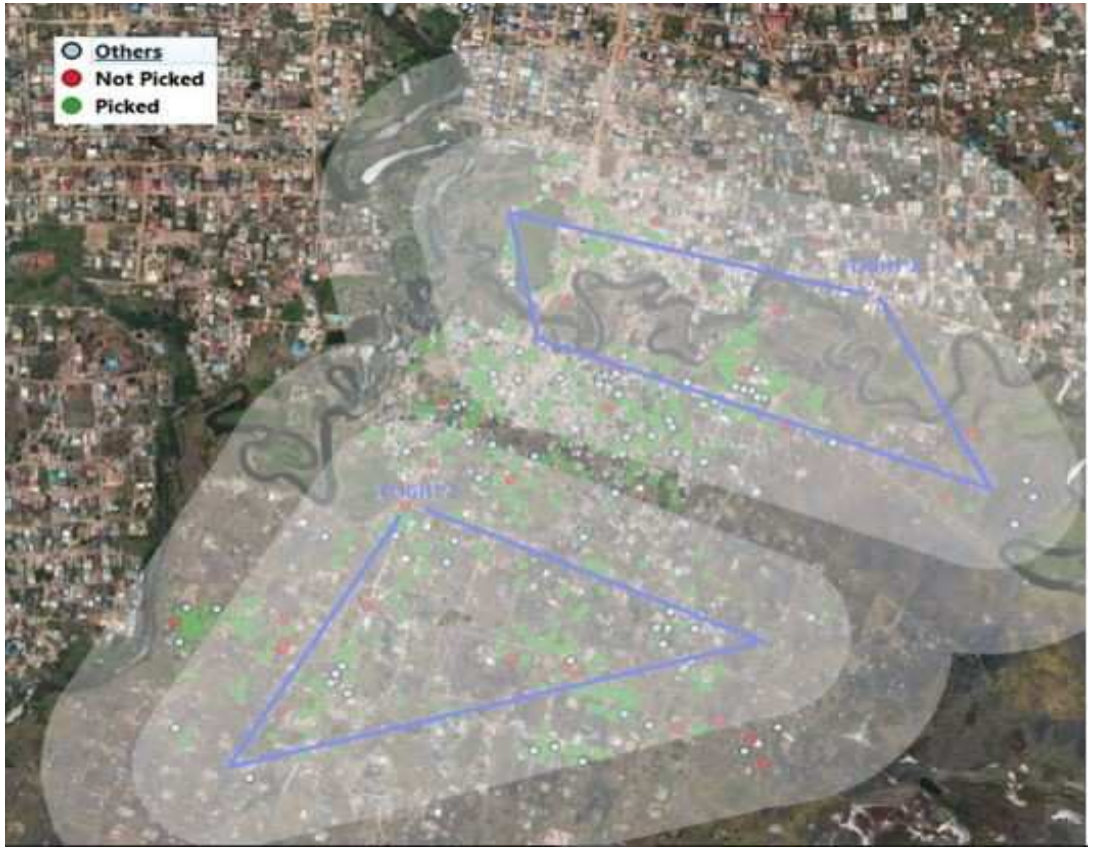
Methodology




FLOOD RISK MAP OF TETEGU TOWNSHIP
N
New Tettegu
Old Tettegu
Aplaku
Legend
Towns
Boundary
Flood Risk
High
Moderate
Low


METERS WITHIN THE FLOOD RISK AREAS OF TETEGU
N
New Tettegu
Aplaku
Legend
meters
Towns
Boundary
Flood Risk
High
Moderate
Low


METER TYPE AUDIT AT TETEGU
N
New Tettegu
Old Tettegu
Aplaku
Legend
Meters
Smart (476)
Mechanical (31)
No Meter (82)
Towns
Boundary



A converter and a mobile device onboard a drone

Results

A drone doing a “fly-by”

Total meters read: 535

Manual Reading	Drone Assisted reading
Time used : 5-7 days	Time used: 15 minutes

Results

- Improved Revenue Generation
- Enhanced Operational Efficiency
- Increased Safety
- Data Accuracy and Consistency

S/N	Customer Number	Meter serial number	AMR (Drone)	Manual Reading	Remark
1	02024322XXXX	76646985	556.304	548.709	OK
2	02024322XXXX	76646987	949.67	949.67	OK
3	02024322XXXX	76646988	834.993	834.993	OK
4	02024322XXXX	76646989	471.773	471.376	OK
5	02024322XXXX	76646990	379.198	372.236	OK
6	02024322XXXX	76646991	434.362	431.608	OK
7	02024322XXXX	76646992	493.208	474.255	OK
8	02024322XXXX	76646993	276.03	276.03	OK
9	02024322XXXX	76646994	314.073	314.073	OK
10	02024322XXXX	76647005	550.276	544.876	OK
11	02024322XXXX	76647008	244.446	240.572	OK
12	02024322XXXX	76647009	229.085	225.184	OK
13	02024322XXXX	76647010	907.718	891.828	OK
14	02024322XXXX	76647011	647.602	638.633	OK
15	02024322XXXX	76647012	203.209	198.64	OK
16	02024322XXXX	76647013	288.462	284.3	OK
17	02024322XXXX	76647014	423.884	418.072	OK
18	02024322XXXX	76647095	1864.885	1833.008	OK
19	02024322XXXX	76647096	77.427	76.27	OK
20	02024322XXXX	76647097	159.537	159.537	OK
21	02024322XXXX	76647098	646.763	636.483	OK
22	02024322XXXX	76647099	42.129	41.146	OK
23	02024322XXXX	76647101	752.576	742.896	OK

Conclusion

- The integration of drone technology into meter reading operations holds immense potential for revolutionizing revenue streams and ensuring business continuity for utility companies in disaster-affected areas.
- By leveraging the capabilities of UAVs, utilities can navigate the challenges posed by natural disasters or emergency situations, streamline operations, and maintain accurate billing practices

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