



# **ENHANCING ROAD SAFETY IN WATERLOGGED DHAKA: A RISK-BASED MOBILE MAPPING APPROACH USING OSM AND JOSM**

By Ramisa Maliha



# DHAKA ROADS NOW RESEMBLE 'RURAL ROADS'

## `PROTHOM ALO

Exasperated, truck driver Murad Hossain began by saying, "I'm in constant fear of the truck overturning. Even the rural roads are not this bad." He was talking to this correspondent on Wednesday afternoon.

Murad has to bring his truck to Babubazar in Old Dhaka at least twice a month. He drives the entire route somehow, but is scared the moment he enters Babubazar. The road is filled with ruts and large potholes, and the truck rocks and rolls as it proceeds. He is constantly thinking, "This is it! We are going to overturn now!"

The road that goes under the Babubazar Road is 650 metres long. On one side of the road, 80 per cent of the paving has crumbled away. There are large potholes all along the way. There is mud everywhere after two days of incessant rain. The mud layer at places is one foot deep. The vehicles travel this road with much risk.

*After the heavy rains over the last few days, it has also become risky for rickshaws and motorcycles to use this road under the Babubazar bridge.*

The Gandaria new road is four and a half kilometers from the Babubazar bridge. This road, almost one and a half kilometers in length, is also riddled with holes. The holes are so large in some places, these become small ponds during the rains. Passengers and drivers are at extreme risk using this road.

*This was the scenario of only one location. Unfortunately, the whole Dhaka city, now, suffers from this problem. Being a resident of 60 feet, I am afraid to use rickshaw as I am afraid that it might overturn. The footage of rickshaw overturning while having passengers on it- was seen by pretty much everyone.*

# PROJECT GOALS

- To let people know, the severe condition of the roads
- To address a problem one need data, our goal is to show a real time visualization of the state of these roads to everyone who can access internet which will create awareness pressurizing the authority, also by helping them in decision making, as we plan to classify these roads based on their risk level.

# OBJECTIVES:

- Use mobile mapping to identify hazards during waterlogging.
- Leverage OSM and JOSM for risk-based data collection and visualization.
- Support decision-making for safer infrastructure.

# TOOLS OVERVIEW

- OSM: Open-source mapping for data sharing and visualization.
- JOSM: Editing and managing detailed geospatial data.
- Mobile Mapping Tools: GPS-enabled devices and real-time data collection apps.

# RISK-BASED METHODOLOGY

- Identifying key hazards (e.g., uncovered manholes, potholes, waterlogging)
- Prioritizing based on risk levels (e.g., proximity to schools, hospitals)
- Field validation of data collected via mobile mapping.



# APPLICATIONS

- Use for real-time road safety alerts.
- Decision-making for infrastructure repairs and flood management.
- Benefits for pedestrians, commuters, and urban planners.

# CHALLENGES

- Data accuracy in flooded areas.
- Resource limitations for regular updates.
- User training for OSM and JOSM platforms.

# POLICY IMPLICATIONS

- Insights for targeted infrastructure improvements.
- Integrating hazard mapping into urban planning policies.

# FUTURE DIRECTIONS

- Expanding mapping to other flood-prone cities.
- Integrating AI for predictive analysis.
- Involving public participation for broader data collection.



**THANK YOU**

