



CPS: Mobile Automated Rovers Fly-by (MARS-Fly) for Bridge Network Resiliency



University College Dublin
Ireland's Global University



QUEEN'S
UNIVERSITY
BELFAST

- **Nasim Uddin (PI), Mohammed Haider (Co-PI)**
University of Alabama at Birmingham
- <http://www.uab.edu/engineering/home/departments-research/civil/people/275-nasim-uddin>
nuddin@uab.edu & mrhaider@uab.edu
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- **Session 1: Thursday, November 15, 5:00pm - 7:00pm, Hilton Alexandria Mark Center Hotel**

Description

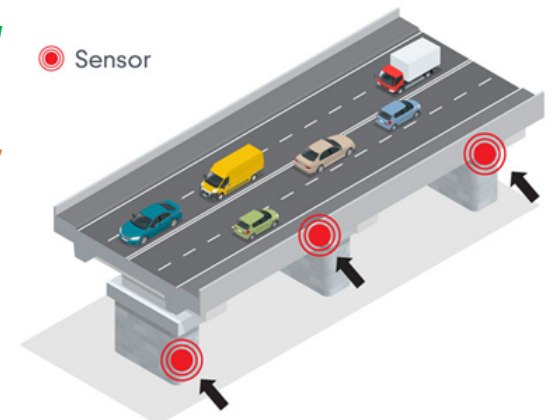
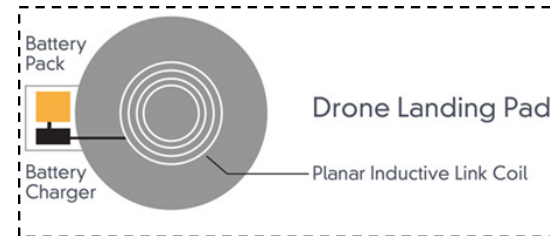
Few major bottlenecks currently exist that severely limit the effectiveness of existing bridge health management methods:

1) The causal relationship between repeated truck loading and long-term structural deterioration is not well understood, (2) reliant on visual inspections which only provide qualitative information regarding bridge health and introduce subjectivity in post-inspection decision making, (3) continuous monitoring generate vast quantities of sensor measurements that must be processed to assess the current state of the structural health, and (4) continuous power supply on every bridge in the network constitutes a prohibitive cost.

Goals of This Project :

Resolve major bottlenecks by advancing an innovative CPS (MARS-Fly)

- *Understand the Relationship between truck loading and structural deterioration*
- *Overcomes the Continuous power supply needed on every bridge*
- *Overcomes the extremely large volume of data*



Findings

- *Wireless charging of sensor and drone battery and data collecting.*
- *Mechanism of Infrared Imagery Technology for damage detection using drone image.*
- *Analysis short data burst for damage detection.*
- *Truck weights using the first probabilistic B-WIM algorithm*

