

# Meeting Minutes



**Meeting Name:** SCE-DOD-FS and BE-CEM R&D collaboration

**Date** 19/03/2021

**Time** 15:00-17:00

**Location** Zoom

**Attendees:** John Andrew Osborne (JO); Mar Capeans (MC); Mario Di Castro (MD); Eloise Matheson (EM); Luca Rosario Buonocore (LB); Roddy Cunningham (RC); Darragh O'Brien University College Cork (UCC) (DO); Helene Mainaud Durand (HD); Isabel Bejar Alonso (IB); Rhodri Jones (RJ);

**Apologies:** [Click or tap here to enter text.](#)

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**Agenda item:** Presentation of SCE-DOD-FS activities

**Presenter:** JO, RC, DO

## Discussion:

- JO- Welcome and introduction of topics to be discussed. Thanks for input to SCE-SAM and SCE-TG.
- RC- Following Tunnel Asset Management (TAM) activities presented:
  - LS2 inspection methodology and policy.
  - Use of TIC application for inspection and its additional features since LMC meeting.
  - Monitoring technologies integrated in CERN Tunnel Inspection app:
    - Tell Tails
    - Mano/piezometers
    - Extensometers
    - Photogrammetry
    - Fiber-Optics
  - Future monitoring plans (additional tell tales, extensometers UX25, automation mano/piezos sect 34)
- RC- Collab ideas example of using existing robotics to read manual instrumentation during restricted access.
- DO- Presentation of photogrammetry research and efficiencies.
- DO- Future works for the rest of the year on development of crack characterization.
- DO- Plans to run a test of current crack detection algorithm and compare against an inspection carried out using existing methodology (non-automated). Test site suggested TT10.
- JO- Presentation of future UCC student's (PJAS) scope and timeline.

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**Agenda item:** Presentation of BE-CEM activities

**Presenter:** MD

**Discussion:**

- Presentation of technology at disposal of department.
- Summary of research on photogrammetry/crack detection completed by former University of Malta student Leanne Attard.
- Description and status of 3d camera procured jointly by two groups and how this will be used.
- Presentation of virtual reality capabilities within group related to TAM activities.

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**Agenda item:** Joint Discussion

**Speakers:** MD, MC, JO, RJ, HM

**Discussion:**

- MC- thanks for presentation of both groups and enquires how this technology compares to industry current practice and standards. JO- Currently ahead of industry and that during Tunnel Workshop held at CERN in 2019, industry was impressed by TAM system in place. MC- Possibility of asking for European grant money for developing system.
- RJ- Enquiry as to accuracy of location determination of TIM. MC- TIM very accurate (mm precision) due to barcode scanning. CERNbot less accurate.
- JO- Further discussion on the scope of future UCC PJAS student scope working on crack classification and to avoid double work with future development in BE-CEM group.
- RJ- Manpower requirements going forward. MD- Requires further help to develop system from proof of concept to a system that can work autonomously and dependably, effectively replacing the requirement for manual inspections. 1 FTE for two years

## ***Actions***

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<b>Action items</b>	<b>Person responsible</b>	<b>Deadline</b>
▪ Arrange test of DO's current crack detection system using 3-tier camera robot in comparison to current tunnel inspection methodology.	RC, DO, MD, EM, LB	End Q2 2021
▪ Update on procurement status of 3D camera	MD	Ongoing
▪ Sign collaboration agreement for PJAS UCC student scope	JO, IB	Ongoing
▪ Continue search for appropriate PJAS candidate.	UCC	End of Q3 2021

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**Action items**

- Development of hardware and software required in order to have a functioning system that can replace manual inspections

**Person responsible**

MD, EM, LB

**Deadline**

Before start of LS3

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