First small scale field test for SNIFFER, 16-17th September 2020, Chambéry, France

On September 16 & 17 2020, the CURSOR project carried out the first small scale field test for "Sniffer" in Chambery, France. The test was organized by EPLFM and hosted by SDIS73, with the participation of CEA-LIST (from the Commissariat à l'Energie Atomique, Saclay).

As part of the soft miniaturized underground robotic finder (SMURF), Sniffer is a sensing module developed both by the University of Manchester (UNIMAN) and CEA-LIST, aiming at detecting human victims trapped under rubble piles following a building collapse e.g. after an earthquake. The module includes commercial CO_2 and volatile organic compounds (VOCs) sensors, along with a specifically developed VOCs sensor array relying on the use of odorant binding proteins. The latter will ultimately allow discriminating between alive and deceased victims in order to prioritize search and rescue operations.

This was the first time that Sniffer was assessed outside laboratory conditions. The field test was a great success: a lot of data were collected by CEA-LIST and the sensors were able to detect the human presence in a number of scenarios, in particular in the presence of smoke, high levels of humidity (rain), and in contained locations made of different materials (wood, concrete, etc.).

The next step will be the demonstration and testing of Sniffer after its integration into a SMURF. A new field trial will be organized to this end in 2021 in Brignolles, France by EPLFM.

Fig. 1: Reconnaissance of the field test site by CURSOR partners: left: above the network of concrete pipes and right: inside the tower with concrete pipe entrance.

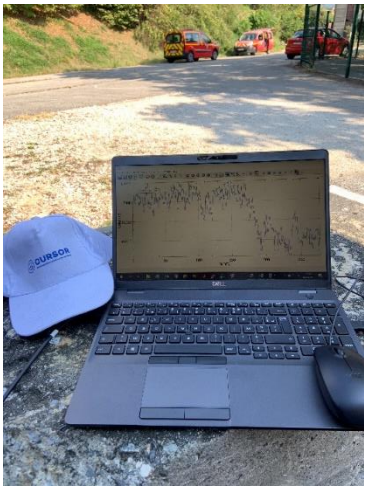

Fig 2: left: Data recording from Sniffer in the presence of a victim and right: Sniffer module

Fig.3: Dog team handler and dog and sniffer module recording VOCs in the atmosphere.

Fig. 4: Measure by the Sniffer and the PID controler of VOC presence from a mixture of cadaver specific VOCs in a hole inside the rubble.

Fig. 5: Watering from hose to test humidity effect on Sniffer measures.