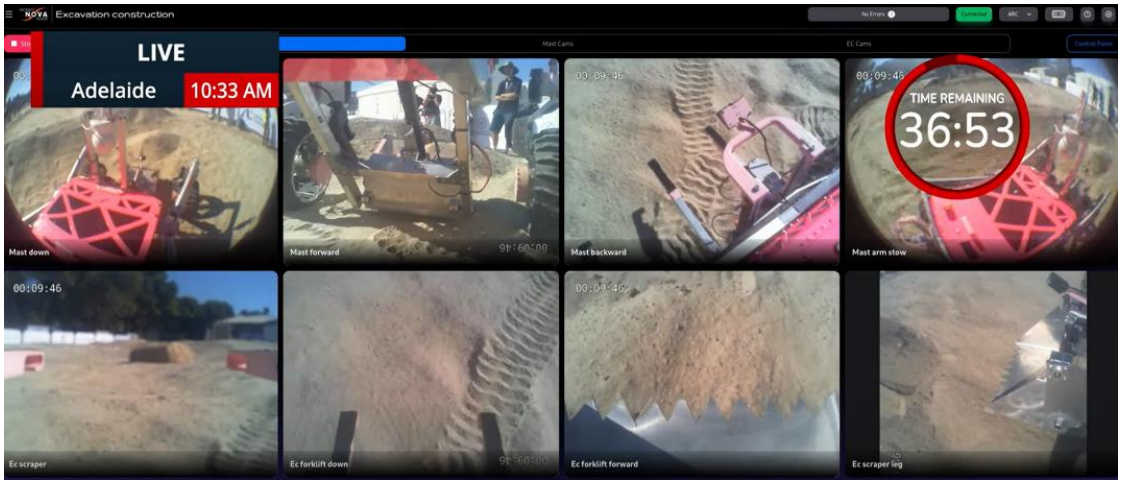
Project ID:		**Client:**	Marc Carmichael
Project Title:	Network Limited Situational Awareness	**Affiliation:**	UTS Rover Team

Description:
The UTS Rover Team is a student led semi-autonomous rover team that competes in the Australian Rover Challenge (ARC) every year, against 20+ teams from around the world. In competition the drive team is entirely separated visually from the Rover operating on track. This requires that data from the Rover is transmitted to the Rover team base station to facilitate the drive team's situational awareness.

Cameras: This project entails the upgrade of the visual system on the UTS rover. From the current visual implementation of two pan tilt zoom cameras for full 360-degree view and one front facing webcam. The new visual system will need to include:

- Two XYZ zoom controllable cameras – supplied (OBSBOT Tiny 2).
- One forwards and rear facing fisheye camera.
- Two modular fisheye mountable cameras to be mounted to temporary rover subsystems.

User Interface & Network limitations: The project will need to be able to transmit data from the 5 cameras whilst remaining under the network capacity of the rover communication system (variable - max ~30Mb/s). This will need to be facilitated by smart limiting of camera activation and framerates, controllable by the operator.



Deliverables:

- CAD design layout and mounting solutions for all components
- User interface for controlling cameras and network utilisation.
- Documentation of all key items.
- Manufacturing – once mechanical design is completed and approved complete manufacturing, testing and validation of system in conjunction with UTS Rover Team

Skills Required	Not required at all	Might be required	Some experience required	Moderate experience required	Significant experience required
Mechanical engineering			X		
Mechatronic engineering			X		
Electronics		X			
Programming				X	
Hands-on manufacturing			X		
CAD (e.g. Solidworks)			X		
Artistic Design	X				

Additional desirable skills/interests:
Networking, GUI Design