- Name: Project Forest Rescue
- Team name: Team PFR

Monitor: temperature, movement patterns, position

- Devices: infrared and regular camera systems, a computer/server to analyse the data provided by the cameras, AI base servers.
- Functionalities: long-range connectivity, heat detection, anti-turbulence system, movement detection like sonar, potentiality for AI controlled drones.
- Planned timeline: unclear
- Resources required: systems to process the captured aural and visual data, drones or similar devices, infrared and other forms of motion detecting cameras
- Issues encountered and solutions: cost issues, connection issues between the drone and the remote-control centre, requirements in piloting of the drones and/or cameras.
- People helped: people who are lost in the wilderness or have gone missing in regional areas.
- Environments used: regional areas, remote wilderness, areas typically inaccessible to people.

Requirements

- System that is able to accept and process big data in order to interpret for specific required information
- Support external hardware and assist in reception of environmental stimulus from said external hardware
- Support an air fleet of drones with little interference at a large distance (20km+) from point of origin
- Automation of drone fleet with little user input required
- Mobile in nature with suitability for multiple regions

Constraints

- Reliability of AI to accurately recognise signs of life in a visually confusing environment
- Rain and other weather conditions that may interfere with the drone's decision making abilities
- Expensive to set up and maintain
- Environmental impact, e.g., a drone crashing could cause toxic chemicals to seep into the ground, the loud noises and constant patrolling could interfere with wildlife.
- Problems with technology, e.g. battery life issues and long distance transmission is difficult between a drone and a transmitter.

Justification

- 30,000 people go missing in Australia every year, and 10% of these are in remote settings. Typically it is costly and physically difficult to survey these areas, especially if it has hostile terrain.

Hardware requirements

- Thermal imaging cameras
- Drones
- Large transport trucks
- Charging stations
- Portable chargers for drones (on trucks)
- Detection stations at specific locations

- Reusable microchipped sports bands
- Server base on the trucks to constantly communicate with

Software requirements

- Big data storage base (NoSQL)
- ML training map
- AI/algorithms with decision making capabilities based on provided primary and secondary data.
- Communication medium for drones (Arduino, Java etc.)
- Wireless reception (using own specific socket channel)
- Sorting algorithm for compiled data (from java)

System architecture

- The wristbands are directly communicating with the ‘checkpoints’ to determine peoples’ location. If someone is reported missing the location where they last checked in will become known and help the database locate them.