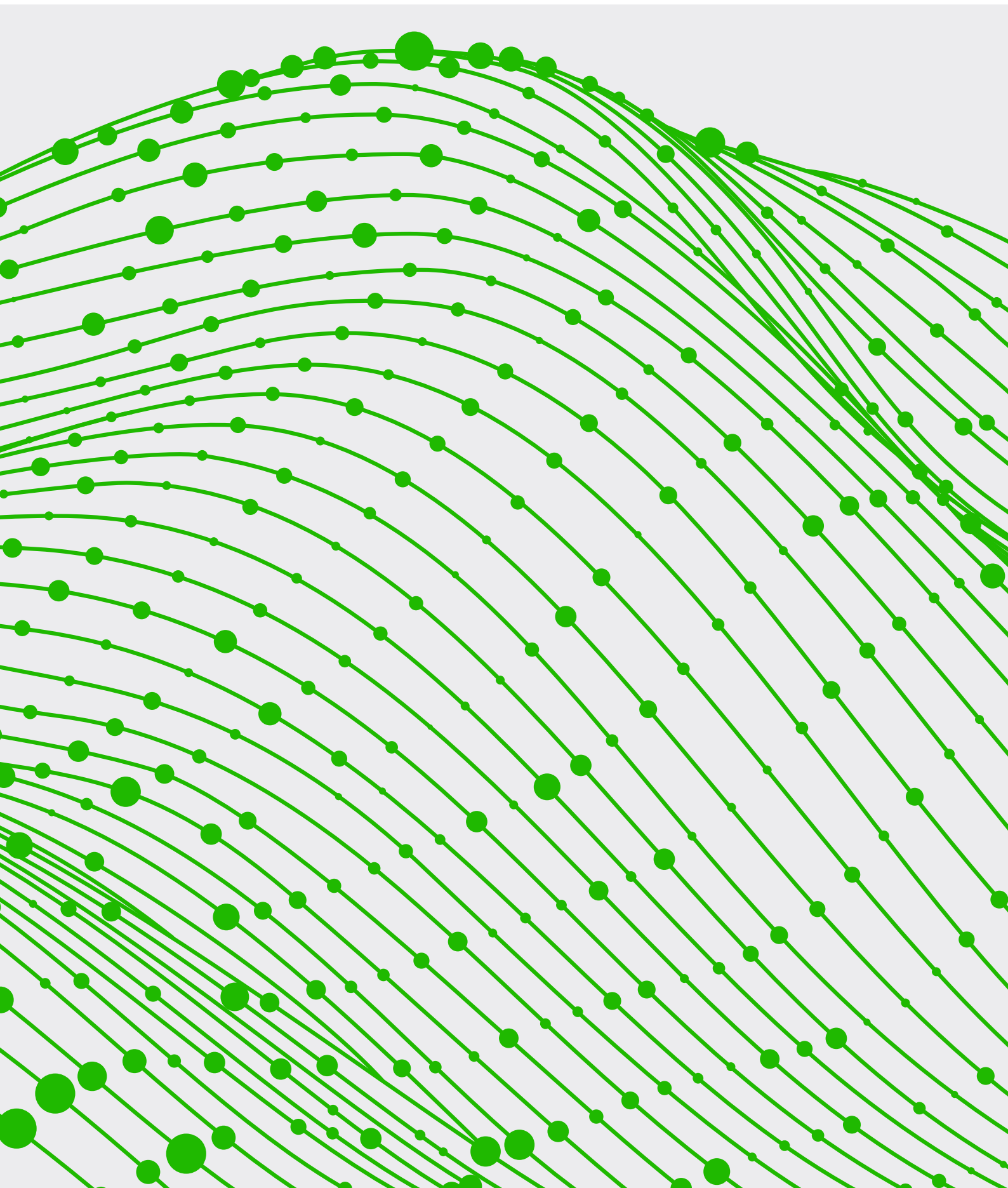# NATURAL DISASTERS ROYAL COMMISSION

Witness Statement Mr. C. McKenna
Managing Director Attentis Pty Ltd

Attentis®

1. Provide a brief career history and background to your involvement and development of Attentis Pty Ltd (Attentis).
In your answer, identify the catalyst/s for the creation of Attentis.

Background and technology developed by Attentis - Founder Cameron McKenna.

I am the founder and Managing Director of Attentis, an Australian technology an innovation company that has pioneered integrated local high speed information networks and developed community, environmental and public safety focused systems.

My previous history includes product design and manufacture of solutions based products initially focused on water conservation and water pumping systems. In 2007 I sold my manufacturing and consultancy company and as part of the sale was contracted to be Chief Operating Officer for 18 months.

Following my tenure, I moved to Southern California to assist in developing water conservation programs. It was during this time and in response to the Victorian 2009 Black Saturday bushfires and the 'Station Fire' in Southern California that I turned my attention to investigating fire detection, understanding response, how information is gathered and disseminated, and the overall management of fire, flood and disaster incidents, engaging with several fire departments throughout California.

Fortunately, California was incubating a new industry around sensors and communication networks around data transmission. I invested two years in California investigating incidents and used this understanding, to design sensors, communication protocols, system architecture and interfaces to create a network to provide a key tool to reduce the time from initial ignition to containment in the shortest possible time.

This new industry, now referred to as the internet of things (IoT) was focused on low power low data networks. These networks could not deliver the real-time requirements of a critical response network and therefore lead to us developing high speed data transmission networks.

Applications of our technology commenced with small scale autonomous detection and automated residential fire suppression (sprinkler) systems. These systems were installed in Malibu, San Diego and Thousand Oaks in Southern California. Upon my return to Australia, I expanded the capabilities of the sensors to incorporate thermal detection for applications in mining and power utilities (hot joints, cables, substation infrastructure and powerline towers), environmental sensing and situational awareness capabilities to create the first fully integrated real-time intelligent sensor network.

In May 2019 under the umbrella of the Australian Federal Government Smart Cities and Suburbs program, and due in part to what we believed was a lack of understanding surrounding the capabilities of our technology, we created the Latrobe Valley Information Network (LVIN). This white labeled platform showcases our fully integrated intelligent networks providing 24-hour real-time environmental and public safety information including early detection, and live weather and air quality information.

2. Describe the product/s, including sensors and apps, that have been developed or are under development by Attentis, and identify their key capabilities. In your answer, identify the likely cost of the product/s to the end user.

Attentis has developed a range of intelligent patented multi-sensors that provide:

- Fire ignition and signature of flame (visible and non visible flame) detection.

- 360° cameras, time lapse and high definition video.

- 360° thermal imaging ranging for 4,000 to 80,000 individual points of surface temperature measurement (from a single sensor unit).

- Air quality sampling (Pollen, PM_1, $PM_{2.5}$, PM_{10}, CO, CO_2, NO_2, SO_2, VOCs and other gases as required).

- Weather including wind speed and direction, wind gusting, relative humidity, barometric pressure, temperature, dew point.

- Water heights (flood detection).

- Materials height and mass (silos, water tanks, material stockpiles).

- Vibration.

- Soil moisture.

- Structural and ground movement.

- Noise.

- Lighting detection.

- Solar irradiance (localised and mapping).

- Water quality (under development).

All capabilities are available in a single sensor unit. The units have multiple power inputs including solar, mains 110 volt, 240 volt, -48 volt, PoE and have an internal bespoke battery back up power supply.

All sensors use multiple communications including licensed and unlicensed radio, cellular, wi-fi and where required satellite. The sensors autonomously switch between communication methods to ensure mission critical data delivery.

The units are manufactured from a bespoke polymer that includes flame resistance and the unit features unique low maintenance features including advanced optical coatings, continuous system analysis and reporting every 30 seconds and active temperature management to maintain operations in extreme conditions.

Key capabilities are all performed in real-time, unlike any other sensor network, providing live conditions surrounding a location, continuous information as the event unfolds, through containment and after cessation.

In summary the Attentis incorporates all capabilities into a single sensor that then forms an entire intelligent network, providing real time data and information for:

- Fire detection and tracking.

- Flood detection and monitoring.

- Weather monitoring (real time).

- Air quality composition and tracking (i.e. pollen, airborne pathogens, storm asthma, smoke).

- Soil moisture.

- Rainfall measurement and tracking.

- Noise.

- Vibration and ground movement.

- 360° high definition cameras and video.

- 360° thermal imaging (measuring 4,000 – 80,000 individual points of surface temperature – continuous).

The modular design of the sensors, networks and interfaces (including Apps), allows a single network to incorporate a complete range of capabilities catering to a wide range of customers. The data produced by the network can then be segregated into encrypted (secured) streams for each individual agency, department or customer, dramatically reducing the costs of constructing individual single purpose networks.

Real-time data → Informed decisions → Increased efficiency

Attentis has 'Under Development' a series of enhancements with the current focus on live tracking and live communication systems for rapid response and tracking.

These enhancements include but are not limited to:

*   Tracking of airborne pathogens.

*   Rapid first and second responder communication methods.

*   Segmented messaging technology for fine scale messaging to reduce immediate impact, next stage high speed data transmission capabilities.

We have recently entered into a technology sharing arrangement with Intuitive Machines (NASA partners) in Houston Texas to share situational awareness, data transmission and network technologies.

Network Cost – Commercial in confidence

Installation of a network and cost of products and services will vary depending on numerous factors, requiring a scoping document in order to provide pricing.

One important installation benefit is the Attentis sensor units are solar powered and do not need expensive time and cost prohibitive mains power requirements at each location. The stand alone nature of each installation includes battery technology designed to operate without a solar connection for up to 21 days. This is a significant design and cost feature premised on the installation of units in remote locations where access to power or communication is not available.

Portable sensor

Standard sensor

3. Since its inception, how many users have there been of Attentis' technology.
   In your answer:

a. identify the locations of users (by jurisdiction):

Attentis has multiple users from all sectors and industries, in various locations, although defined into two categories; individual network customers - where we have either constructed or leased a network or

shared networks - networks designed to provide multiple capabilities for a range of users - .i.e. the Latrobe Valley Information Network (LVIN)

Individual network users include:

• Commercial in confidence - available on request

The LVIN provides an interesting use case. The Latrobe Valley was selected for our demonstration network due to the Hazelwood Mine Fire and the Black Saturday Bushfires. The LVIN delivered the recommendations of the Hazelwood Mine Fire and approximately 23 of the 67 recommendations of the Black Saturday Bushfires Royal Commission. The LVIN has a range of regular users, however it is interesting to note that during the East Gippsland and NSW Fires, network logins were recorded at over 11,000. If we are to create a metropolitan network the daily average users are expected to be far higher as the focus would be around daily air quality and weather with rapid user increases during events
(e.g recycling factory fire in the western suburbs).

b. provide any analytics concerning categories of users:
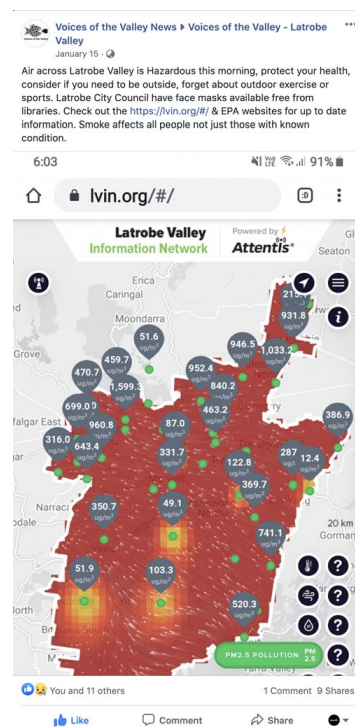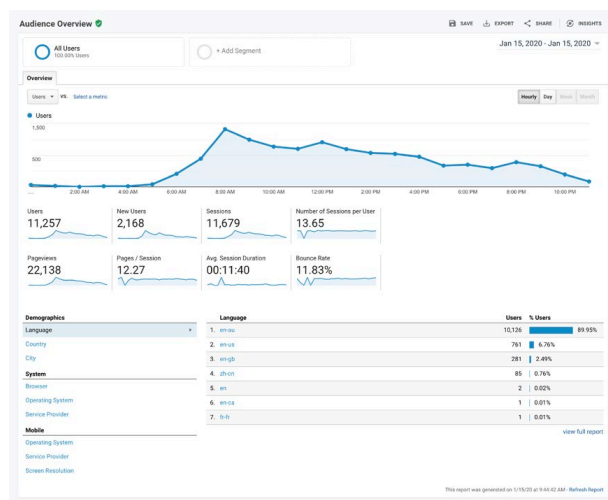
c. describe any intentions that Attentis has to implement its technology in other jurisdictions, including in the Napa Valley and Texas.

Attentis is a global solution and there are plans to expand the networks nationally and internationally. We are currently engaged in the USA, New Zealand, United Kingdom, Chile Brazil and Italy. Our networks provide unparalleled levels of live data at a location or a region. Compounding effects and benefits are delivered when implemented across larger areas providing greater capability to manage unforeseeable events, assets, community understanding and increase community resilience. Information from our networks provide the catalyst for improved health, safety, productivity and industry protection, regardless of geographical location.

Napa Valley

The Napa Valley Attentis network combines autonomous fire detection, individual automated vineyard suppression systems to prevent smoke taint damage to grapes and yield, live air composition and movement including weather, soil moisture and ground movement. This technology investment has been validated with joint work performed with the University of Adelaide.

The Napa Valley and Region has a very similar bushfire risk profile to Australia and although the bushfire risk is significant, there are broader impacts and consequences on the Region / Napa Valley community and industry.

The Attentis network will perform several additional monitoring activities focused on region wide agricultural improvements for soil moisture, wind and rainfall tracking, automated irrigation, frost detection and mitigation as well as vital air quality composition and tracking to address an identified future threat that has the possibility of dramatic health impacts to the community.

Texas

The Texas project is the construction of pipeline detection network for methane gas lines throughout Texas. This is an Intuitive Machines partnership to couple our ground-based sensor network with autonomous drone reconnaissance to manage leakage detection across vast spans of gas pipelines. Although in project design phase, this will be a key project for future roll outs in the gas industry and is attracting significant interest including a gas company in Northern California that will allow an expansion link for Napa Valley Network and commence greater coverage in Northern California.

Kangaroo Island

The Black Summer Kangaroo Island Bushfires (7th January 2020) prompted the CEO of Kangaroo Island Council to express their desire to construct a Kangaroo Island Information Network (KIIN) similar in nature to the LVIN.

A scope of the network was prepared and forwarded to the CEO of Kangaroo Island Council and presented as a key component in the comprehensive future plan for the island. The *Kangaroo Island Prospectus and Bushfire Response* (see attached) details several key strategies to rehabilitate and future proof the Island. The prospectus projects are as follows:

Project 1.   Sea Route Connection

Project 2.   Kangaroo Island Airport Hub

Project 3.   Kangaroo Island Telecommunications

Project 4.   Kangaroo Island Information Network (KIIN)

Project 5.   Kingscote Wharf and Marina Redevelopment

Project 6.   Waterproofing Kangaroo Island

Project 7.   Road Network Redevelopment

Project 8.   Kangaroo Island Public Realm investment to transform Township mainstreams and Key Camping Facilities

Project 9.   Accommodation

Project 10.   Sustainable solutions for Kangaroo Island

Project 11.   Kangaroo Island Plan

The desire to replicate this network is of significant importance to the Kangaroo Island Council as it represents the clearest way to provide not only early detection but to invest in an information network, providing all year-round weather, agriculture, forest protection and a community resilience network designed to positively influence the daily lives of residents throughout the Island.

Mount Barker & Adelaide Hills

In 2018 in accordance with a request from the South Australia Government Attentis presented the technology to several agencies, Government Departments and the Mount Barker Council whom were interested in providing protection for their community and the local wine industry from the threat of bushfire.

In November 2019 the Mayor of Mount Barker, accompanied by staff, visited the Latrobe Valley to experience the LVIN. After engagement and positive feedback from the Latrobe City Council, Mount Barker Council commenced discussions regarding the construction of an Attentis network in Mount Barker and the surrounding Adelaide Hills.

Unfortunately whilst discussions were underway, the 2020 Black Summer Bushfires tore through the Mt Barker and Adelaide Hills region causing devastation to the local wine industry with several vineyards experiencing complete loss, estimating a 5 year period was required to return the vineyards to a point where production was possible again.

Since the 2020 Bushfires Mount Barker Mayor has engaged in discussions with the Federal Member for the region who has requested State Government Leaders to contact Attentis to work through the construction of a network(s).

Statewide networks

It is our intention to create statewide networks in South Australia, Victoria or New South Wales with the key goal to provide our platform to change how communities interact with their environment and deliver resilience to communities through greater awareness and access to live information about localised events as they unfold. This will enable individuals, families and the wider community to make better decisions which will lead to improved outcomes surrounding resilience, public safety and improved general health.

4. Describe the information produced by Attentis' technology. In your answer, include how this information can be accessed by parties external to Attentis.

Information produced by Attentis' technology maintains complete ongoing localised situational awareness delivered through the continuous sampling of environmental factors that impact daily life and events. Maintaining continuous awareness of wind movement, temperature fluctuations, air composition, humidity levels, rainfall, fog, dew, soil moisture, river heights, water composition etc, in fine scale, allows for complete understanding of factors and trends that impact events as well as daily health, production outputs for agriculture and allow for improved planning.
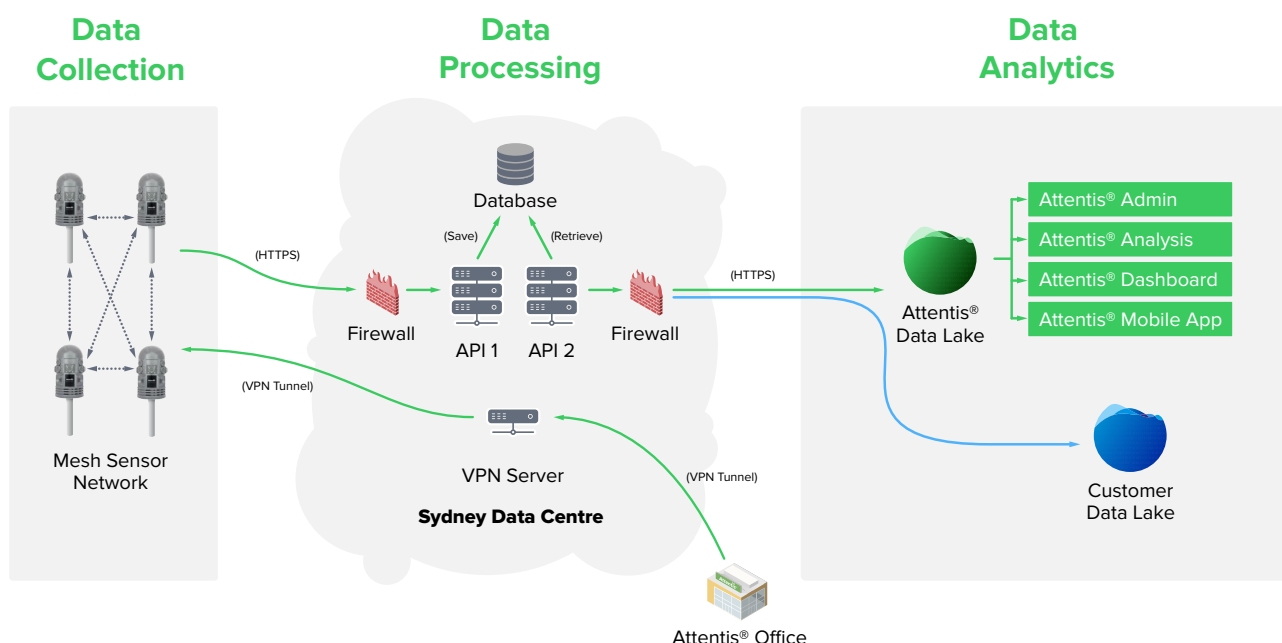
Combining this technology with unmanned intelligent detection and notification enables prediction (when combined parameters determine a high probability) whilst during an event, such as a fire, flood or airborne pathogen, details fine scale information about factors that drive the scale of the event, enabling rapid well informed decisions and response to reduce the impact.

Information produced by our networks is available through multiple channels. Agencies, Departments and industry customers have the option of viewing secured data on Attentis constructed interactive interfaces and Apps or have direct data feeds into their various systems via an API.

All network interfaces, Apps and data viewing platforms are constructed in-house and are fit for purpose, designed to be intuitive and easy to navigate.

If required, data can be injected into third party operating systems to improve prediction capabilities or integrated into agency and organisational systems.

Attentis public facing interfaces and Apps (e.g LVIN.org) provide secured accounts for general users through website registration. User access, account creation, messaging and information management is performed by Attentis. Attentis customer accounts allow individuals to set alerts based on thresholds delivered by push notification or email. For example asthma sufferers can receive individual notifications when local air quality is within a range that could impact their capacity to breathe. Notifications provide information to reduce exposure and a clear explanation of the health impacts of the particulate type.

Data Collection

Mesh Sensor Network

Data Processing

(HTTPS)

Firewall

API 1 API 2

(Save) (Retrieve)

Database

Firewall

(HTTPS)

(VPN Tunnel)

VPN Server

Sydney Data Centre

(VPN Tunnel)

Attentis® Office

Data Analytics

Attentis® Data Lake

Attentis® Admin
Attentis® Analysis
Attentis® Dashboard
Attentis® Mobile App

Customer Data Lake

5. Describe the background for the development of the Attentis' technology, and the key personnel who were involved in its development. In your answer:

a. outline how and to what extent Attentis' technology is designed to address any particular deficiencies in other systems, such as cameras, satellite systems (including Geoscience Australia's DEA Hotspots system) and drones;

Throughout the course of investigating and analysing detection and response (fire fighting in California) I discovered several key factors that contributed to the extent of the event that had to be addressed in order to reduce overall impact.

The two most important factors highlighted during my investigation were time and information, or a lack thereof. The time expended from initial report through to resource deployment determined in part the ability of the event to establish itself. The second critical factor was the conditions local to the event that enable movement or expansion. It was these two factors that outlined the premise for the development of the Attentis sensor, intelligent network and the interfaces that accompany the system as a whole.

Today, detection of events can occur in several ways and in the case of fire ignition, the most common is physical spotting of smoke, leading to contact with an emergency services agency. The agency then investigates the event and deploys resources to contain or control the impact.

Satellite systems have been considered a possible solution for early detection of fire ignition, however there are limitations in the detection ability based on the level of resolution of thermal detection and the infrequency of passover of a location.

Frequency of passover of satellites at any location is limited to twice per day, making detection of an event in its infancy, unlikely and random. This could only be combated by the use of multiple satellites coupled to a tracking system to ensure effective continuous coverage. However, even if a network of satellites was employed to perform the early detection component, they still fail to provide information about the factors that will impact the growth of the fire i.e. soil and fuel moisture, wind speed and direction and the changes in weather factors as the fire begins to develop its own weather system.

The employment of camera systems whether they be unmanned using smoke image overlay algorithms or manned systems requiring physical sighting, camera systems offer the same limitation as satellites; they provide detection but fail to provide any information about the weather and local conditions surrounding the ignition that contribute to the growth and movement of the fire.

Cameras systems are a solution for long range line of sight detection of smoke plumes, however they are solely a detection component. Human identification and interpretation are also limiting factors. Further limitations include line of sight, reduced night detection capabilities, impact of fog, cloud cover, marine layer and shadowing, all of which can result in false detection. Cameras in place of physical lookout towers have proven to be relatively unsuccessful in managing large scale areas.

Understanding these limitations, we designed and developed the Attentis system focused on the two identified critical requirements; early detection and localised conditions. Knowledge of localised conditions is critical in managing fire growth and movement.

The Attentis sensor provides multiple forms of detection: flame signature, thermal imaging and air sampling to denote the presence of smoke, CO, CO_2 and particulates. We designed and patented this detection system as it is the only system that offers multiple detection capabilities to ensure detection of visible and non-visible flame fires. This enables 24 hour detection.

Further to the detection capabilities, combining all weather and soil moisture sensing capabilities provides the level of information to enable improved prediction, resource positioning, aerial targeting and coordinated rapid response.

To address the critical time component, we installed 360 degree cameras in each unit to enable on site continuous visual monitoring to aid visual understanding.

First responder alerts feature visual images, thermal images and localised conditions to reveal the extent of the ignition and the environmental conditions that will influence its growth and movement. This is time critical intelligence to enable rapid, effective response.

The network is designed to detect fire ignition through multiple methods, send an alert detailing the detection type, location, all weather conditions at the location and visual and thermal images to confirm the ignition and the extent. The alert is shown on our live location map (see LVIN) including fine scale wind movement throughout the region.

The system also provides live air quality conditions to provide safety for the health of firefighters attending the fire and local residents impacted by the smoke.

Self powered and utilising multiple intelligent communication, Attentis sensor units incorporate bespoke low maintenance features and continuous system diagnosis, function autonomously, combine into a fully integrated network and can automatically operate equipment.

The incorporation of river heights, ground movement, vibration and noise as well as live air tracking enable the Attentis system to be utilised for flood, storm, and airborne pathogen events (i.e storm asthma).

b. Describe the expertise and qualifications of key personnel involved.

Attentis Pty Ltd has a wide range of highly qualified staff with Masters and Degrees in systems architecture, electrical, software, hardware, telemetry, advanced polymer and photonics engineering. This is supported by expertise in UX design, meteorology, air quality science and network installation and maintenance experience.

6. Identify any third-party supporting systems, technologies or services required to operate Attentis' product/s (e.g power supply, telecommunications coverage).

Attentis designs, develops and manufactures all sensors, systems, interfaces and Apps in-house, with the only external reliance being on specialist components manufactured in Europe to our specifications.

Attentis networks use proprietary communications transmitting data between units, therefore enabling placement in areas that has no cellular coverage. All units are solar powered with an internal battery back up system allowing continuous operation during periods of poor weather and low light conditions. There is no reliance on any third-party supporting systems, technologies or services, except in the use of cellular and satellite networks as an alternative communication protocol. To this end, we maintain a strong and close relationship with Telstra through an MOU with Telstra Mining Services whom are a technology partner and communications service provider.

7. Describe the possible uses of Attentis' technology in the context of natural disasters.

In terms of natural disasters Attentis networks can be used in multiple ways from the early detection and event management through to community notification and responder management.

Operating as a stand alone self powered network, a region-wide or statewide network will maintain continuous information streaming and communication if mainstream systems are disabled as a result of fire, flood, earthquake or storm. The network also creates it is own Wi-Fi network to enable communication of messages through the system, acting as a secondary system if the primary system is no longer operating. In the event of a large scale fire, evacuees within 100 metres of an Attentis tower can receive and transmit messages to and from emergency services. This feature maintains critical communication when primary services of power and communication are temporarily unavailable. The network can perform this role during any form of natural disaster.

During the 2019 Gippsland fires the CFA accessed LVIN daily, leading to the following quotation from Glenn Pröbstl, Operations Manager, Specialist Response, Fire & Emergency Management, CFA Headquarters:

"Firstly congratulations to the Latrobe City Council for supporting a network of atmospheric monitoring stations throughout the council footprint.

I recently had the opportunity to utilise this service during a recent fire in Gippsland. The ability to monitor weather, for fire operations and pollution for firefighter and community health was a huge advantage over previous campaigns.

The advantage of real time information cannot be over emphasised and this was of great benefit to the management of these fires."

8. Describe the outcomes of any case
    studies using Attentis' technology,
    including in the Latrobe Valley in the State
    of Victoria.
    In your answer, describe any features of
    the installation of Attentis' technology.

Yinnar Fire – reignition

During the Yinnar fires in March 2019, the sensor
located at HVP Plantations in Jumbuk detected a
reignition detailed in the following screen shots.

Latrobe Valley Information Network (LVIN) – Yinnar South Fire March 2019.

During the installation of LVIN the thermal detection capability of the sensor was proven, detecting a re-ignition inside the fire footprint adjacent to an at risk property and home. I received a series of thermal notifications (far left) displaying the detection and the increasing temperature at the ignition source.

Heat detection   sensor direction   Smoke visual detection
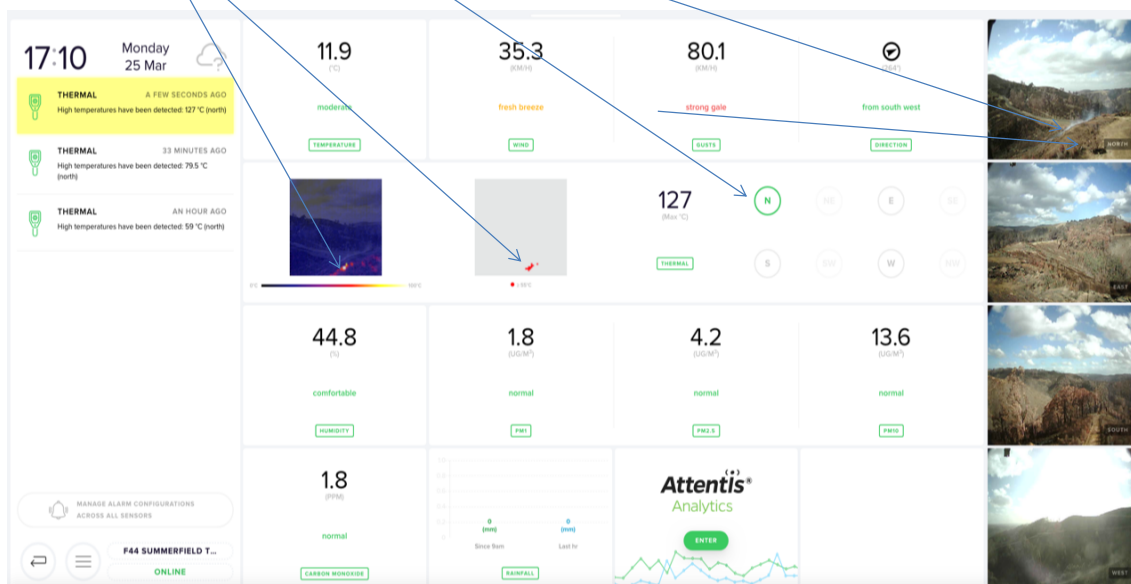
This thermal image shows the heat source(s) detected. This autonomous detection sends an alert to any individual or group who have set up alarm configurations   This photo shows evidence of crews on scene.

Attentis®

9. Describe how and to what extent Attentis's technology is of utility in protecting assets of significance (including utility assets and assets of environmental or cultural significance) against natural disaster risk, and/or protecting communities generally. In your answer, address:

Apart from the early detection and management component of Attentis networks, the network can be used to detect ember and fire front proximity to properties in the fire path and automatically operate installed sprinkler or suppression systems.

During the first stage of development in California, several residential properties (Malibu, San Diego and Thousand oaks) were fitted with automated stand alone sprinkler systems coupled to Attentis version 1 sensors. Properties in Malibu and the Thousand Oaks fitted with Attentis automated suppression were saved during the Woolsey Fire in 2018.

This type of automated detection and suppression can be applied to a range of structures, assets, industries and sites of cultural significance to automatically engage mitigation systems to protect them from fire, flood or storms without human intervention.

Attentis sensors are currently being used in substations and on power-line infrastructure to detect pollution accumulation (a leading cause of insulator faults and flashovers), detect hot spots, arcing and fire ignitions as well as tower health (line movement, structural integrity, coronal discharge, insulator failure) as a method to reduce the risk of fire starts and tower failure during heavy storms.

Attentis also manufacturers a powerline movement sensor to detect swing and sag on powerline to detect fallen or clashing lines.

The LVIN is the largest environmental monitoring network constructed, globally. Tracking environmental conditions across a region or state will produce greater understanding of the changes and future threats in locations, enabling focused resources to protect these communities.

Attentis Apps are designed to notify the community of an event, detail locations and conditions (air quality) providing a clear understanding of potential impact, the risk of exposure and reveal safe locations to reduce exposure. Access to clear, well visualised information, available on an App has the potential to reduce traffic

on emergency services hotlines (000) by maintaining a continuous stream of information to the wider community.

The Attentis App aligns to the National Emergency Warning System that provides warning information as per the National protocol.

a. Whether the sensors used as part of Attentis' technology are portable:

Attentis manufactures a complete range of portable sensors. Portable tripod mounted R9 series sensors include all capabilities of network sensors and begin sensing and communicating when powered.

Portable units operate autonomously as an individual stand-alone sensor or integrate with a neighboring Attentis network, appearing on the map and utilising the network to transmit data.

b. The benefits that a national Attentis network in Australia could deliver:

A national Attentis system provides significant benefits to the community, first responders, environmental, air quality and noise agencies, infrastructure owners and operators and a multitude of industries through access to micro-climate information across the nation. A nationwide Attentis network will transform event detection and prediction and when coupled with rapid aerial response will dramatically improve the ability to combat large scale fires in the future. Further to this, the information delivered by the network(s) provides the basis for greater community engagement, awareness and response.

The key benefits include:

- Open access to real time information about your local community and neighbouring communities will assist timely decision making by empowering the community with relevant and tailored information about their local community and neighbourhood.

- A national network will provide a consistent and standardised approach to critical information. This will in itself generate confidence and consistency at community level and remove the jurisdictional blockers or barriers that currently exist.

- A national network will provide scales of economy in the establishment and ongoing management of the networks as a whole.

10. Describe how and to what extent the technology developed by Attentis could address and/or improve response to and mitigation of natural disasters.

The Attentis network provides an integrated solution that is compact and able to be deployed in areas that have a need. The need will require a set of priority principles that include:

- Protection of life and property.
- Protection of critical infrastructure protection.
- Protection of lifelines to enable community to be resilient including economics.
- Protection of environmental values and assets.

Applying these principles will result in:

- The more densely populated areas becoming a priority for early detection of natural disasters (fire, flood, storm) and importantly air quality impacts associated with fires.
- Critical infrastructure assets including catchment areas are a priority, including water reservoirs and the surrounding water catchment areas.
- Life line services to the community and industry including electricity, water, sewage and telecommunications networks and suppliers.
- The protection of wildlife, culturally significant and environmental heritage and protection areas.

11. Describe whether and to what extent the data produced by Attentis' sensors is compatible with relevant State and Territory Government systems. In your answer, describe any impediments or challenges (both financial and non-financial) to the adoption or integration of Attentis' technology into those systems.

The data produced by the Attentis networks can be made available in any format and injected into any State and Territory system through the creation of an API. The API will need to be created by the State or Territory agency to permit data integration into their system. We do not foresee any technical impediments (financial or non-financial) in integrated Attentis data into any system, nationally.

12. Describe the feedback and/or comments which have been provided by users or potential users of Attentis' technology with specific reference to its use in the context of natural disasters.

The network was actively used by the CFA and the Latrobe City Council during the Yinnar Fires of 2019 (see page 10), recent DELWP planned burns and throughout the East Gippsland and NSW fires, directing the residents of the Latrobe Valley to view the air quality conditions to ensure limited exposure.

Paramedics presented the use case for the Attentis LVIN network in relation to respiratory cases. If several calls complaining about breathing, asthma or respiratory ailments were received at dispatch, they immediately reviewed the live air quality conditions in the locations where the calls were received. In the event that these levels were unhealthy, a warning was issued to local sufferers to remain indoors. The local hospital was also advised of increased patients expectations and appropriate staffing was scheduled to meet this demand.

Power transmission and distribution companies in the region have access to live conditions coupled and the ability to set individual threshold breach alerts, allowing instant notification of hazardous wind movement and speeds. Staff then monitor high risk locations to reduce the possibility of undetected line clashing, fire starts or impacts to the power transmission or distribution network.

The network is used by Plantation operators to monitor access to their plantation and manage the risk of fire ignitions (e.g. arson, car torching, etc) through the 24 hour thermal imaging component of the network. On Black Saturday the Latrobe Valley plantations experienced significant losses resulting in a shortage of timber in the region. In 2019, 10 years later, the long term impacts were revealed when the Heyfield Mill was set to close due to insufficient availability of timber impacting 250 local jobs and the follow on impact to associated supporting industries.

Smart City of the Year 2019 (Regional)

Best Government IoT Project (2019)

Best Overall IoT Project (2019)

"A project of national significance."
Reg Carruthers
Executive Director Defense and Space, Defense SA

"Why not statewide?"
- Latrobe Valley community

"We are excited (about the LVIN) because it actually gives the normal person on the street the ability to see what is happening, live."

"If there is a high reading in their area; if it isn't good for your health, you can look across the Latrobe Valley and travel to a location to reduce your exposure."
Wendy Farmer - Voices of the Valley, Spokesperson (March 2020)

"Access to real-time information on this scale will assist to build community resilience and confidence, and lead to an informed understanding during events that impact lives throughout the region."

"Expanding this network will bring greater benefits to all communities and agencies increases the level and breadth of real-time information available."
Lance King AFSM, Manager, Emergency Management, Latrobe City

The LVIN demonstrated the desire of the general public to access real-time information across a larger area, validating our original idea.

The following excerpt was taken from Reddit discussing the LVIN.

↑
72
↓

Posted by u/nicky_knicky 2 months ago

An Aussie start up has created a trial environmental monitoring network in Victoria that detects air quality, microclimate weather, flooding, air composition and movement.

lvin.org/ ⬈

💬 8 Comments   ➦ Share   🔖 Save   ⊘ Hide   ⚑ Report   94% Upvoted

| What are your thoughts? Log in or Sign up | LOG IN | SIGN UP |

SORT BY **BEST** ▾

↑
↓
leftieant 5 points · 2 months ago

A very cool implementation of crowd sourced environmental data - but why clip the "windy" wind speed / direction plot to the Latrobe Valley only? It would be really useful to understand what is happening both upwind and downwind of the Valley as well.

I can see a program like this being really useful for monitoring smoke impacts from fire also rather than just relying on EPA data.

↑
↓
nicky_knicky 🎤 1 point · 2 months ago

I assume that based on this trial the plan would be to expand the network state wide, then maybe Australia wide which would be incredible. They would be able to track data on the impacts of mining and industry and hold them accountable.

As a side note, the EPA (who we funnel hundreds of millions of dollars to each year) tried to replicate a similar network to this but failed to get it working so 4 million dollars went down the drain, and they were only tracking air quality. This private start up is tracking so much meaningful data it's insane.

The EPA need to step up their game.

↑
↓
RotisserieChicken82 4 points · 2 months ago

This is great. Bureau of meteorology need to buy this guy up and scale it nation wide

↑
↓
Maxious 3 points · 2 months ago

BOM also have a site you can upload your weather station data to and view the data on a map http://bom-wow.metoffice.gov.uk/

↑
↓
__biscuits 2 points · 2 months ago

I agree with that, but the BOM is government run and it is against the current governments vested interests to have accurate climate data. Also their reduced income means there will be very limited expansion or procurements outside of defence. Not this term.

↑
↓
nicky_knicky 🎤 1 point · 2 months ago

100%! The data they are getting looks to be incredibly detailed and accurate. The areas between the the sensors look to be algorithmically averaged out, I wonder how many sensors they would need to cover the entirety of Aus. I'm pretty excited to see where this start up goes.

13. Identify and briefly describe:

a. Any work Attentis has done with State or Territory emergency management agencies or other State or Territory departments or agencies; and

b. The feedback received in respect of that work.

Department of Environmental, Land, Water and Planning – September 2015.

Wedderburn Planned Burn – Thermal Imaging and Event recording.

• Commercial in confidence - available on request