



Community Development Report

Date: 11/04/20

Produced by: Robert Venus

Special Statement: Given the current crisis resulting from Covid 19 and the associated issues this has caused both socially and in regards to project delivery, I have been working pretty much exclusively on this issue since March 15th 2020.

As such, the following report is a summary of some of the work I have been undertaking as attempting to cover all aspects within a single report would be untenable.

That said, I would welcome calls from any Councillor wishing to discuss things in more detail.

Local Covid19 Support Measures

Since the commencement of the heightened severity of the C19 situation I have been working with local volunteers to establish a range of support services for local residents. These have included:

- **Volunteer phone befriending and check-in calls;** 4 volunteers have now been issued with phones and are already operational.
- **Prescription Collection Volunteers:** We have established a list of volunteers who pass certain criteria based on career, previous volunteering roles and knowledge of them among core volunteers. This includes teachers, care staff, nurses etc; role which require a level of background checking. I have also contacted all pharmacies throughout the Amman Valley and paired them up with a volunteer. These volunteers then respond to public requests for support and/or requests for support directly from the pharmacies.
- **Community Shoppers:** volunteers who are now conducting shopping trips and delivery to local residents.
- **Online Support:** through social media platforms we are providing information for both those who are online and asking them to share this information with friends and neighbours who may not be online.
- **Amman Valley 3D Print Farms:** I've developed 7 3D print farms in the Amman Valley who have contributed to the production of frontline staff face shields. More on this later in this report.
- **Meals on Wheels and Food Support Services:** Since March the 16th I have been working closely with Cllr. Madge in the development of this service. This has included the identification of volunteers, promotion of the service and handling enquiries from both local residents and from their families as far away as Hong Kong who are concerned about vulnerable relatives. I've also identified and secured 2 local catering businesses (Pantycelyn and the Square and Compass) who are supporting the Meals on Wheels service by proving meals on Saturday and Sunday respectively; at the same cost.
- **Public and Professional Queries:** Since the escalation of the C19 situation I have been fielding queries from people from across Cwmaman and the Amman Valley. I've also received enquiries and requests for support from across the UK and internationally. Many of these are from people with concerns for family members who live locally and they have found be via Facebook and the community website. Where possible these are directed to existing provision. Where this isn't possible, I have done what I can in support. These queries range from issues with Free School Meals through to an emergency call as an elderly relative wasn't responding to calls from their relative in Hampshire. I visited the address and found the house phone was damaged, provided a replacement phone of my own and reassured the relative.
In addition, I have been receiving a wide range of calls from professionals such as pharmacies, GPs, foodbanks, third sector bodies such as Age Cymru and similar.
- **Information Accuracy:** during the week of March 16th there was a lot of inaccurate and intentionally alarmist information being shared on local social media. In response to this I began vetting posts shared to the platforms I have Admin access to and supported others in how to factcheck and remove inaccurate information. There are now a number of residents in the Amman Valley tagging me and others in such posts so we can respond with information from reliable sources such as Public Health Wales.
- **Mental Health Support:** We have partnered up with Shadows Depression Support Group and a number of volunteer well-being/counselling professionals. These are now active within the social media platforms and available in the volunteer numbers.
- **Heart Notes:** I have presented an idea to the primary community volunteers whereby people are able to send a message to a loved one in isolation through social media or a dedicated email (heartnotes@cwmmamantc.org). These will then be printed by a single volunteer, observing decontamination protocols, and delivered to the addressee. This will hopefully help to maintain contact between those people not on social media and their families/friends.

Frontline 3D Print Farms – Face Shields

During the week commencing March 16th myself and Dr. Dimitris Pletsas (worked with previously on the Formula 3D project) had discussions about using the 3D printers available through the previous project to produce face shields for frontline staff. Since that point the project, in regards to face shields, has developed at an incredible rate. The current status is:

Face shields produced: 6500

Volunteer 3D Print Farms Activated: 42 Fully Operational, 4 Small Parts Farms

Face Shields on Order: 3960

Distinct organisations and wards supported: 151 at time of writing

As a result of this we are now working with health professionals locally, regionally and internationally; see below. We have also, as a volunteer project, received £30,000 of funding from the Brechfa Windfarm Fund to provide items specifically to Glangwilli Hospital. We are also working with funder to finalise a further £30,000 to provide for community nurses/care staff in Carmarthenshire. These funds will be used to purchase the required printers, equipment and materials and, once the crisis is over, all equipment will be provided to schools and community benefit projects to help promote the skills that have allowed this to happen. This funding is being provided via a quote or email request to the funder with payments being processed by them.

We have also received confirmation from Glangwilli Hospital Clinical Engineering Department that the face shield design has fully passed testing and is now the only reusable face shield being produced by any group; including the one made by the Royal Mint which is single use only.

Amman Valley MakerSpace is the primary public face behind the project with all orders, updates and communications happening via the MakerSpace Facebook page. The need has escalated to a point where I've appointed 2 additional volunteer Admins for the page to handle distinct messages; Orders and Fundraising.

The project has evolved into a truly exceptional cross-sector collaboration with representation within the "movement" from Swansea University, Hywel Dda and ABMU health boards, engineering companies including Haydale and Vortex (among others), previously socially isolated community members now engaged in the online groups, schools and scientific research facilities.

To-date we have raised £6,165 through a GoFundMe page created by a local resident. All funds are currently being managed by Amanwy as Andrea is handling procurement of materials. We will also be publishing the Amanwy accounts following the crisis.

The initiative has been covered by the South Wales Guardian, Wales Online, the Carmarthen Journal and featured on Heno.



Fully assembled Face Shields ready for delivery.



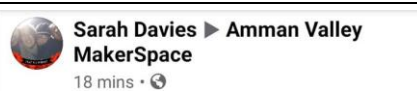
Collecting 3D printing filament plastic from Haydale in Capel Hendre



An example of the 3D printed parts of the face shield.



"Thank you so much for our masks. I can't put into words how grateful we are! This really is life changing". - Awel a Mor Care Centre



A Massive thankyou to Amman Valley Makerspace for providing 3d visors for the Emergency Unit in GGH. We are so lucky to have local support in the fight against Covid 19. #Staysafe #HywelDda



Photo and message from staff at Glangwilli Emergency Unit



Thank you photo from staff at Glangarnant Elderly Care Home.

I have no hope in hell I did work in care from [redacted] that was it this group gave me something that I haven't had in a long time like not feeling useless I finally can help with something and noone to judge :)

09:54

Message from local 3D Print Farm Volunteer

Frontline 3D Print Farms – Other NHS and Frontline Support

Following the spread of the initiative to provide face shields I was contacted by Owain Ennis (Consultant Trauma and Orthopaedic Surgeon and Carmarthenshire Clinical Lead, Hywel Dda UHB) with a request to support with other essential items that they are unable to source. I then met with Owain to discuss these and the following items were identified:

- Full Face Mask with Respiratory Protection.
- Half Face Respiratory Protection at sufficient level of protection.
- A full hood system with respiratory protection.
- An air feed system (air pump) to provide clean air to the wearer of a mask or hood.

This also resulted in me being invited to be a part of three working groups:

- Stanford University - Professor Prakash's PPE International Working Group.
- The Wales Based "Pneumask Reusable Full-Face Snorkel Mask PPE Project"
- The regional based SWARM working group.

Since first contact with Mr. Ennis I have held numerous Zoom meetings with engineers, science and clinical specialists and makers from around the world. I have developed 4 possible solutions to the issues above; images on next pages.

Full Face Protection:

Using snorkel masks which are modified to receive viral filters we hope to offer a higher degree of protection. The issue faced internationally has been the need to produce different adapters for each brand of snorkel mask.

I have developed a possible solution to this which will be going through testing this coming week. Instead of using the existing air intake, specially designed adapters have been designed which will fit all masks by placing them through the actual visor; by drilling a 16mm hole.

A Chilean scientist and clinician, Cristian Muniz Herrera, have conducted a series of self-tests to measure O2 levels, CO2 build-up in the mask and Cristian recently passed a "fit test" to ensure the mask works effectively.

If testing is successful here, then the files and designs will be released openly to all international partners. We will then move the print farms to produce the required attachments.

Half Face Respirator:

The issue here has been one of fit test failure. Meaning many staff are unable to source a mask which fits them well enough to prevent the virus entering their airways. I proposed a possible solution through the creation of a soft, oversized, silicone elongated/elliptical ring which will be compressed against the face when straps are tightened. I am working with the Swansea University Engineering department on the following task list:

- Need: assessment of existing printable mask bodies.
- Need: test prints of the above; with consideration for silicone "donut" seal mounting.
- Need: Silicone donut options; materials.
- Need: Mould/cast options which take in consideration for maximum flexibility (both senses of the word) for facial fit. Making use of strap placement.
- Need: standard ISO22mm mounting point on all options.
- Need: filtered inhalation and exhalation ports.

Once a suitable 3D print design is devised then I will produce these through the volunteer print farms.

Full Hood System

Mr. Ennis informed me of a shortage of effective hoods for staff to use in high risk zones and if they're unable to wear a face mask.

I identified a possible solution in aircraft fire hoods which are deployed in the event of an emergency on an airliner or RAF plane to protect the flight crews. One of the Frontline 3D Print Farm volunteer drivers then drove to St. Athens to collect a sample 3 units. We have now investigated these and I am working with partners to develop attachments to fit them with viral filters and positive air feed systems. See images below.

Air Feed System

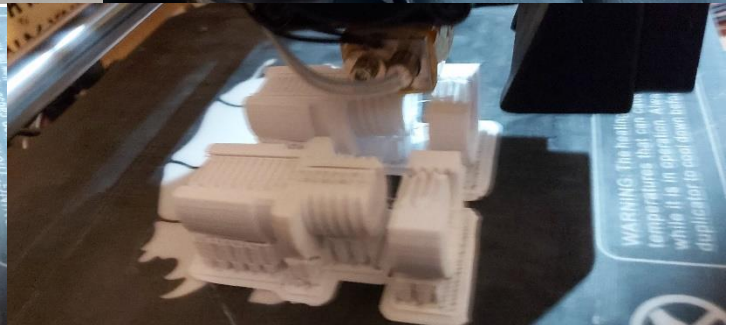
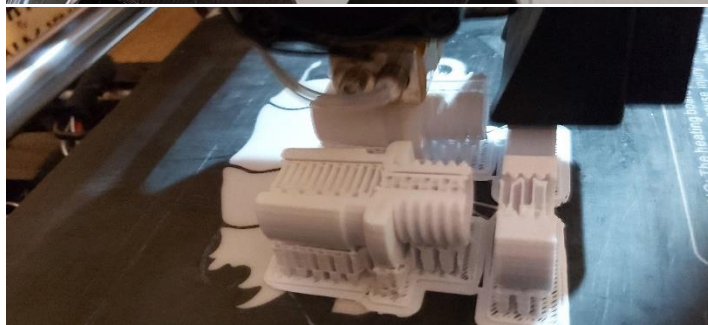
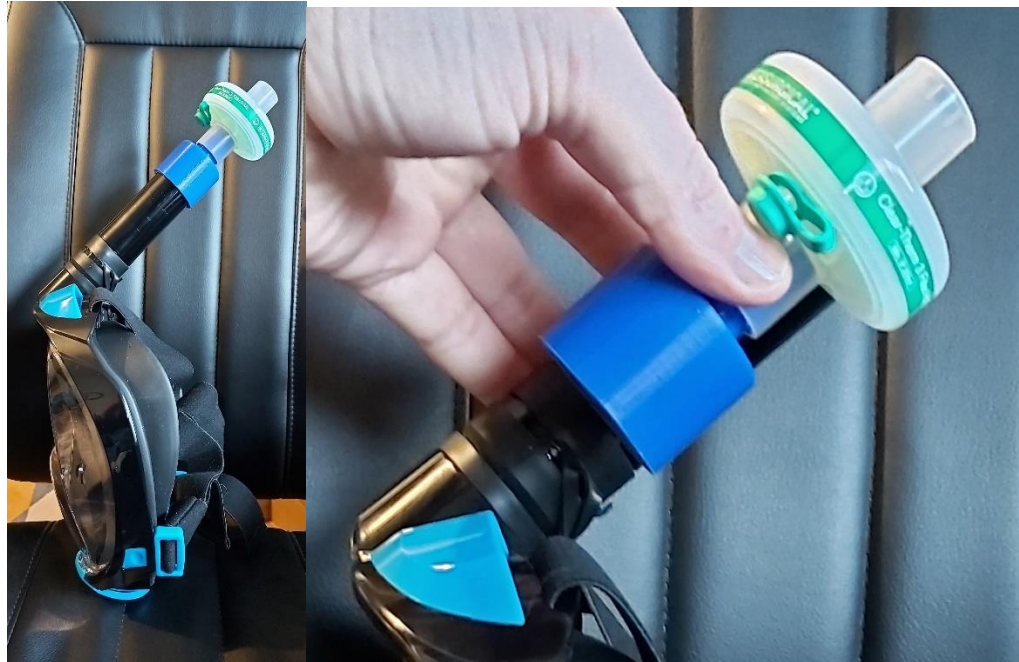
This is a pump which provides air to the user through a tube to a mask or into a hood. The idea is to A) provide clean air and B) to create positive air pressure inside the hood to prevent air entering from outside.

I have tested the ability of various fans to provide sufficient airflow and have identified to feasible fan options. I am currently designing the housing of this to be as simple to produce as possible and quick to produce and deploy. It must also be easy to decontaminate and reliable.

See images below.

Please also see email at the end of this report from Mr. Owain Ennis

Snorkel Modification:



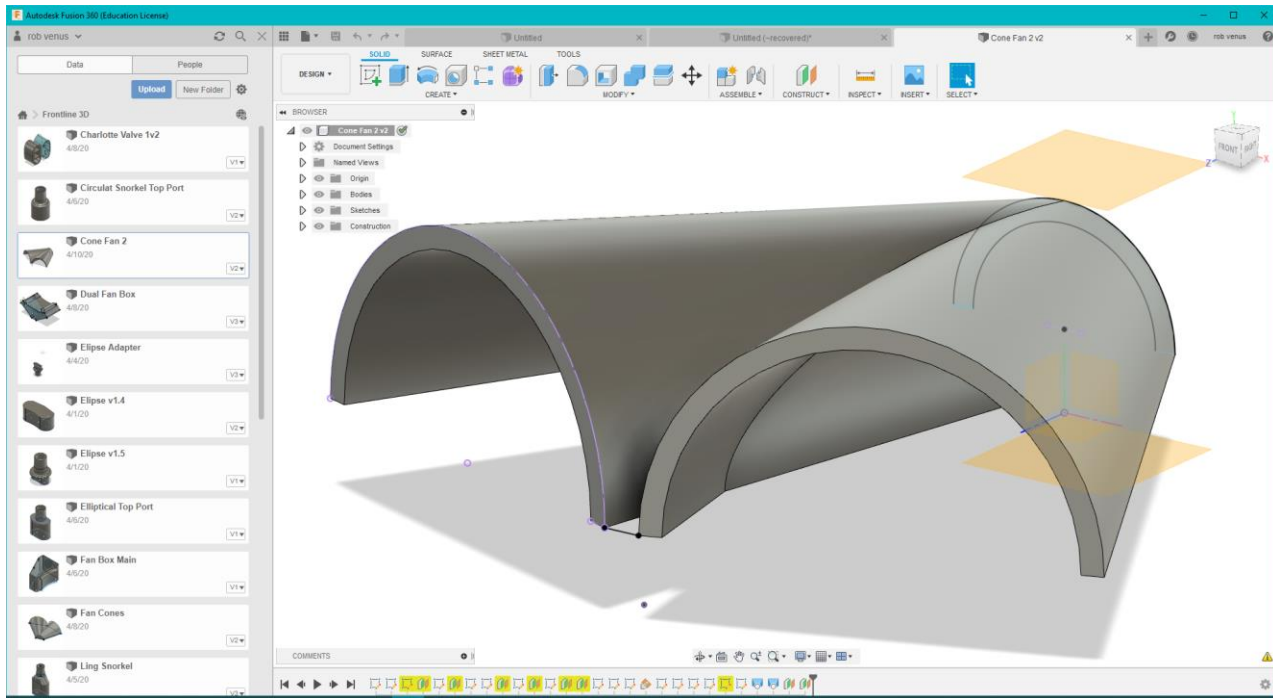




Full Hood Prototype Solution:



Air Feed System Prototype Design:



Evidence of Slack Stanford Collaboration:

Slack needs your permission to [enable desktop notifications.](#)

PrakashLab ▾

Rob Venus

Jump to...

Threads

Channels

covid19-snorkel-ppe-int...

covid19-snorkel-ppe-int...

covid19-snorkel-ppe-int...

Direct Messages

Rob Venus (you)

Cristian Muñoz Herrera

Davide pavia

melanie.hannebelle

Cristian Muñoz Herrera

away | Cristian M.

Wednesday, April 8th

Search

@ ☆ ⋮

Hi Cristian. Following a discussion \

medical staff this end... the idea was floated of ignoring the current ports entirely. Capping them off or filling them with a resin compound.

Viral filters then to be fitted directly to the visor using the relatively flat side sections. Deviation in the surface can then be addressed using an epoxy washer and/or silicone gasket. I'm going to test later with a mask that has failed around the lower seal. Just wanted to run this by you for initial response. The primary benefits of this are:

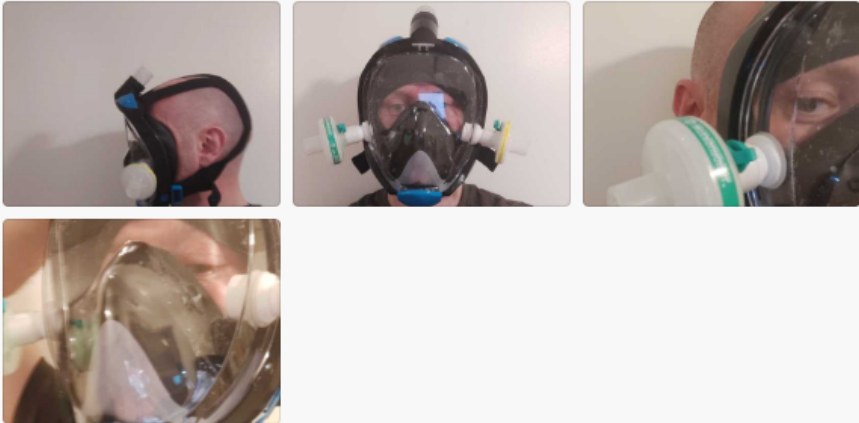
1. Removing the issue with variety of tube profiles.
2. Use of standard air intake for positive air feed.
3. 3D printed components could be replaced with off the shelf threaded couplings.

1 hour wear test completed. Aside from the squashed head... no issues. Fogging restricted to exit port.

Going to conduct CO2 and O2 level tests at Glangwilli hospital over the weekend. Want to avoid widespread sharing as don't want people potentially destroying usable masks for a flawed idea. 🙌


Hopefully have good results to share ASAP.


10:08 4 files ▾



Also... I may have located a source for full head hoods. Airliner crew smoke hoods. I have 2 arriving tomorrow from RAF St. Athens for testing

Screenshot_20200408-215903_Gallery.jpg ▾





Cristian Muñoz Herrera

10:42 PM

Hi Rob!... I love it. I needed some incentive after today....Im wasted after the tests. Yeah, I will use the tested masks to try out some ideas like the ones you are showing. You are right, lets try and do something and see if it works before spreading it. The hoods look good too. Also I encourage you to get elastomeric respirators and P100 filters...they aced the tests...If we cant prove the snorkels work, Im going for those thing in my clinical practice

covid19-snorkel-ppe-int...

covid19-snorkel-ppe-int...

Direct Messages

- Rob Venus (you)
- Cristian Muñiz Herrera
- Davide pavia
- melanie.hannebelle

Thursday, April 9th

Rob Venus 9:54 PM
Did you pass fit test? 🙌 🙌 🙌

Cristian Muñiz Herrera 9:54 PM
A+
The mask is airtight

Rob Venus 9:55 PM
👏🔥 Amazing news! Congratulations Cristian! Very pleased for you and everyone. May I share with Clinical Lead Owain Ennis? He will not share elsewhere 🙌

Cristian Muñiz Herrera 9:56 PM
Share with whoever you want my friend
we need to move forward

Rob Venus 9:56 PM
Thank you. Hopefully I have similar results soon 🙌

Cristian Muñiz Herrera 9:57 PM
you will
Im confident
the mask works

Slack needs your permission to enable desktop notifications.

PrakashLab ▾

covid19-snorkel-ppe-international

Thursday, April 2nd

does anyone have contacts with this hospital? And what are the thoughts on the international team about this approach?
In my opinion, we should all be doing this with EVERY covid hospital

Rob Venus 9:39 AM
Good Morning Everyone. I produced 2 possible connectors for 2 UK available masks yesterday. One elliptical port and one circular. Both at first draft stage. Both will be compression fit to the snorkel tube (cut down). Additional structural and airtight support will be offered through the use of large diameter heat shrinking tubing. Thoughts would be much appreciated.
Hope this finds you all well.
3 files

Thibaut Pollina 10:20 AM
Good Morning everyone!
Not sure you have that link yet: <https://youtu.be/xJ6sbaqU3Vw>

Message #covid19-snorkel-ppe-international

Thread
#covid19-snorkel-ppe-international

wow what's the reference of this mask?

Cristian Muñiz Herrera 9 days ago
Hello Rob. If I may, I suggest the the tubes to be shorter (as short as you can) to diminish the dead space, avoid increasing breathing effort and keep re-breathing of CO2 from becoming an issue.

Also sent to the channel

Rob Venus 8 days ago
Good Morning Cristian. Absolutely. I left long for testing but is now cut down to just the length of the adaptor. 🙌
I hope to reduce this further with the addition of heat shrink. The heat shrink will add strength and reduce the need for physical size/strength..

Amman Valley MakerSpace

The most rural MakerSpace in Britain developed by Rob Venus as Community Development Officer for Cwmaman Town Council.
Providing community access to 3D printing, laser cutting and associated technology. Catalyst for collaboration with Swansea University's Dr. Dimitris Pletsas in how 3D printing can enrich education. This collaboration then led to the development of Frontline 3D Print Farms which have produced over 2000 face shields in 2 weeks for frontline medical and healthcare staff.
www.facebook.com/ammanvms

Details from Google Maps
High St, Glanamman, Ammanford SA18 1DX
www.cwmaman.org.uk
+44 1269 822882
[View in Google Maps](#)

51.80476, -3.92254

Email from Mr. Owain Ennis

From Owain ennis★

Subject Thanks for all your help so far

To robvenus@cwmmamantc.org★

Cc Me <rf.venus@yahoo.com>★

↩ Reply ↩ Reply All ▾ → Forward 📁 Archive 🗑 Junk 🗑 Delete More ▾

15:30

Email from Dr. Dimitris Pletsas:

See end of report.

Email Re. "Eric" (elderly resident of Cwmaman from daughter in Hang Kong)

From Sandra and John Snelgrove <snelly316@gmail.com>★

Subject Re: Re: Joining Meal delivery list in Glynaman

To robvenus@cwmmamantc.org★

25/03/2020, 13:10

Request for PPE Support from Housing Services Manager (Carms)

From Angela Bowen <AnBowen@carmarthenshire.gov.uk> ☆

Subject PPE masks

To robvenus@cwmmamantc.org ★

Cc Ray Symes <RSymes@carmarthenshire.gov.uk> ☆

07/04/2020, 09:48

Dear Rob, I have been forwarded your details as a possible supplier for PPE, we are currently trying to source FRSM Class IIR, FFP2 or FFP3 masks. Please contact my colleague Ray if you are able to provide any? Regards Angie

Angie Bowen
*Rheolydd Dros Dro y Gwasanaethau Tai: Incwm a Buddsoddi /
Acting Housing Services Manager: Income and Investment
Cartrefi a Chymunedau Mwy Diogel / Homes and Safer Communities*
☎ 01554 899292 (7292)

™ e-bost/email AnBowen@sirgar.gov.uk / AnBowen@carmarthenshire.gov.uk

Evidence of Amman Valley MakerSpace Involvement in International Stanford University Project

