

# Genius Hub R&D Roadmap (2024)

## Introduction

Below is a list of the R&D projects that we will be taking on and considering for the next 12 months. This is not an exhaustive list and we may choose to add in new projects or drop projects as the business dictates.

## Upcoming projects:

### Improved 'Doctor' / Troubleshooting Wizard

We are in the process of overhauling the troubleshooting wizard, adding new solutions, improving existing ones, and restructuring the layout which should make it much easier to find the correct solution to an issue quickly.

### Updated App

We are looking to migrate the app to a more modern framework, allowing us to implement improvements and changes more rapidly, improving the responsiveness of the app and improving accessibility.

### "History"

This will add a 'log' of actions taken by the user or by the hub, in order to understand better what the system is doing. For example: when a zone mode change is made, and what triggered this, or when a setting is changed.

### Multihub Dashboard

With larger properties in mind that have more than one hub it would be better if you did not have to swap between hubs on the app as you currently have to, but you could see a summary of all hubs in one screen. This would help with quickly applying settings from one room to another across hubs. Our largest site currently has 27 hubs across it and another site has a single building with 13 hubs in one building alone. In these sites user privileges are also important so a receptionist can only boost a room but a maintenance engineer can administer and service the system. The same applies to the domestic environment where parents can have access to the whole system and children may have the app but may only be able to boost their own room to a maximum temperature.

### Improved Local Network Communication

This will help the app to find the Genius Hub when on the local network much faster and more reliably. Currently you can tap twice on the 'welcome' page to load up the manual connection, but this is really only for the most technical users. With mDNS the hub will expose itself differently on the local network so the app will connect to the hub directly, rather than having to use the tunnel via our cloud servers.

## Longer Term Projects

### Push Notifications

We have a list of notifications that we understand to be useful, such as rooms not getting up to setpoint, rooms reaching setpoint, rooms turning on/off, occupancy being detected, a room not having a device (as it has become lost) to help users fix issues if they were to occur. This has not been a focus as we've wanted to focus on the devices not becoming lost in the first place, but we appreciate that this is a requested feature.

### User Profiles

This is where you can back up the schedules and settings on a hub and then restore them should there be a problem or restore a different schedule for term time and holiday time if you have children, or home and away schedules if you leave the property. Currently we routinely back up customer's hubs so we can restore a back up should there be an issue but we would like to offer this as a service should you want to do this yourselves.

### WiFi

It's a little known fact that all of those customers who have the HUB-C and later (the thin hub not the 'blocky' hub), have WiFi, but we have not turned it on yet. Much of the work has been done to be able to connect the hubs to the internet. What is holding us back is the support angle. Currently it is very easy to diagnose issues remotely with 'cannot connect' with the internet as removing the ethernet cable and putting it back in again solves the issue for the most part. When customers change their WiFi routers their will loose connecting to the heating with the app if you don't update the WiFi password and this will add we see a significant layer of complexity to the support we currently provide for free.

### Buttons

We've built three buttons into the back of the HUB-C and are not wanting to commit as to what is the best use for them just yet. These were put there to future proof the product for our customers, we have ideas on what we can use them for and have deployed one which is a 'reset' or 'power down' button as explained in this article<<https://docs.geniushub.co.uk/x/9QAK>>. The other two we have made plans for such as; enabling/disabling include/exclusion on the hub, enabling/disabling remote support, but we realise we needed the time to open this up to our users to get the most from these and see what you think of this, but we've not prioritised this yet.

### Lights

As well as the three green LEDs (the 3rd one you won't have seen so far is for Wi-Fi) on the side of the hub we have been future proofing the hub and we have built two lights into it, one is around the outer edge and another is behind the 'G' symbol on the front of the HUB-C and later. Like with the buttons this project is complete but we needed to get feedback on what people would most associate with the lights. Ideas this side have been; informing the user that the hub is heating or not heating the property, inform users that there are issues with the devices in the property, or that the hub is in include mode. Again this is something that we want to open up to the users before committing to their function.

## **Map of Z-Wave network**

The wireless signal strength could be optimised in a property if users could see which devices are able to see each other and also what the strength is between the individual devices. With the latest advancements in the Z-wave chip we can now integrate this into the app and for users with the HUB-C and later you will be able to see which devices are on the edge of the radio range. Currently a device on the edge of the radio signal will intermittently drop in communication and will get through batteries quickly (less than 1 year). This project will help when setting up a system as well as help customers maintain their systems as things change in the house.

## **Completed Projects:**

### **Licensing for support**

We never plan to take away any features that customer's have on their hubs when they purchased their system, but currently email and phone support is not sustainable as it is. We don't think that we should expect a customer who purchased a hub many years ago and has never contacted us, or a customer who has purchased a hub recently, to be subsidising a customer who purchased the system 7 years ago who phones us and asks for help with low water pressure in their boiler, or an explanation of how to change the batteries in a valve for example. So moving forward in 2020 we will be charging a small licence fee for email and phone support, should you want it after the 3 months free period post installation expires. We will also be rolling this out to new features that are currently in Beta test at the moment, but this will be optional to all customers and it will be kept separate to the support licence. So, if you want the new features that have been developed after your system was purchased but not the support you only need to pay for the new features. Any critical updates for security and bug fixes will be included for free and will not be part of the licence.

### **Amazon Alexa**

With voice assistants being the way forward for home IOT as we see it, we are currently developing direct Alexa integration rather than using IFTTT. One of our customers is currently having a go at this as well as us doing it ourselves, and it's been great to include your feedback into this so far.

### **Battery life investigation**

We're working on improving the life of the batteries in larger systems by reducing the chances of collisions of messages. We have found that that we can syncopate the messages better, reducing the chances that devices will have to resend a message because it did not get through the first time due to a collision.

### **Data broker**

This means refactoring some of the low level code to make the system more reliable. We know that very occasionally a hub will lock up when there is a deadlock in the threading. We introduced more threading to make the hubs faster and we're ironing out a few of the kinks now which have crept in, and this will be implemented into each hub upgrade as the improvements are made.

### **Customisable Deadband (engineer access only)**

This has been a requested feature - we've listened and we're working on including this into the system to help reduce the chances where customers have issues with their boilers running when the valve is closed, and they are not wanting to use the Valve Hidden Offset.

### **Improvements to pre-heat and footprint schedules over midnight**

Making it easier to set heating periods that span the 00:00 from the end of one day to the start of the next. It may be small thing but we have been asked about it.

### **Z-Wave transmit overflow**

When a hub cannot see any devices because it is in a poor location such as inside a server cabinet, or something changes such as a new internet router is placed very close or on top of a hub the hub cannot communicate effectively to the devices in the property. We are implementing a change so it will fail more gracefully when it cannot communicate to the majority of the listening devices and it will alert the user to this fact.

### **Inter-Hub Device Communications**

We are seeing a shift in the customer base to those with larger homes as we are being branded as the true zoned system unlike smart thermostats with valves as these don't take into account things like electric heating, underfloor heating or multiple zone valves. We are also keeping an eye on the commercial world where the Genius Hub is being installed into pretty complicated properties with all of the above. In a large domestic property where more than one hub is required, currently each hub must be able to call on the heat source, we plan to change this so one hub can tell another hub to bring on a heat source, allowing us to save a lot of cabling between hubs on larger systems.

### **OpenTherm (functional, but discontinued as a product)**

We believe that boilers are going to adopt the OpenTherm connection in the future, as this is an open protocol for connecting to a boiler rather than using the thermostat terminals. The big advantage of this is for those boilers which support it we can tell the boiler what temperature to put the water out depending on the number of rooms calling for heat and the outside temperature - increasing the efficiency of the system as a whole. We have developed all of the hardware for this now and are running trials with some customers this winter as you will have seen from our newsletters in Summer 2019. These trials are going well and we hope to release this in autumn 2020.

### **Investigating 'Spurious overrides'**

We've found what the issue is here as it's to do with the command class on the valve reporting a different setpoint to the one that the hub expect, and this is down to the threading, causing the hub to get confused between different devices waking up and it processing messages for one device when really it should be another device. The problem for us is that the devices do not report that they have changed their value, they only report the value they currently have. This means that it's difficult to know when they've been changed, but we think that the improvements we have made in this project and also the Data Broker will help stop this being an issue.