Smart Glasses Review : Realwear HMT-1 Part 2

In this article I will be continuing my review of the HMT-1 smart glasses, the first portion of which can be found here.

Before I get into the review, however, there is some smartglass-related news circulating around which I would like to cover first.

Due to the present-day low birth rates, as well as the aging population, it is becoming strikingly clear that the construction industry will soon be understaffed.

Though the construction industry is just one example, other fields such as manufacturing, transportation, and agriculture are experiencing labor shortages as well.

For that purpose, the following plans are in consideration:

· Use of mobile/wearable devices

In order to prevent heat stroke, the wearable devices come with full-body sensors that track body temperature as well as pulse, and they let out alerts if necessary. Not only does this help prevent work-related injuries and deaths, it has an additional functionality which I will discuss later.

· Use of IoT, Robots, and Drones

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With the help of drones, tasks such as surveillance, measurement, management, and maintenance become easier.

Drones would help with tasks that deals with high altitude, or locations with bad footholds, and there will be less need for tasks such as stacking scaffolding, which may attract the younger generation to the field.

Our company also does work with drones in the construction field, but since the topic of today's article is regarding smart glasses, we shall postpone the discussion to another time.

For those who are interested, please send in an inquiry.

· Use of AI and Big Data

Self-operating technology is steadily advancing in the fields of heavy machinery and in agriculture, but how about something more familiar? Up until now, master craftsmen learned their skills by observing and copying others. Going forward, as knowledge accumulates in the form of big data, it is becoming increasingly likely that AI will be able to do the same.

Using these methods, the Ministry of Land, Infrastructure, Transport, and Tourism intends to incorporate ICT known as "i-Construction," and double productivity levels by the fiscal year 2025.

That was quite a long introduction, but the truth is that wearable technology has great compatibility with industries such as construction and manufacturing.

Currently, there are two main uses for wearable technology. The first is long-distance operational management, another is for the creation of digital workflows for operational technology. That is, other than just managing the work process via cameras and microphones, checklists and manuals for tasks can be created as well.

As for how this can be used, consider small-scale production methods; as the products that are manufactured change day by day, workers with versatile skill sets are highly sought after. Unfortunately, it takes time to train workers to this level, and this is where wearable devices come into play.

Using digital workflows, it becomes possible to arrange work into a series of sequential tasks, which not only provides clarity to the process, but also aids in avoiding mistakes. Additionally, through the use of vocal input, checkpoints become clearer,

which further decreases productivity loss. Depending on the process, it is possible to use QR codes to prevent picking errors, and when a task requires multiple people, those checkpoints can be linked together. The sensitivity of the sensors can also be adjusted to allow for different kinds of connections.

Further advantages of digital workflows include multilingual support for foreign laborers, video workplace monitoring, and providing video evidence of completed work.
Though wearable devices are not necessary to make use of digital workflows, one of their advantages is that it is comparatively cheaper to develop new systems for them.

This technology has uses outside of the manufacturing industry as well. In construction, for instance, it can be used to enforce the pointing and calling of checkpoints, and the camera can be used for remote monitoring as well.

Even in times when changes have to be made to the work, this can be easily done remotely. It is also possible to point out unsatisfactory performance remotely. And again, using the sensors that are found within wearable devices, it is possible to prevent heat strokes and promote safety as well.

In the agriculture industry, it is possible to use workflows to control self-operating machinery via voice input. In the future, it will become possible to translate languages real-time for foreign workers; there is a hope one day, a single worker will be able to manage multiple farms at once.

In order to move closer to the future, I would like to introduce a piece of software for the Realwear HMT-1.

Realwear Explorer

A tool perfect for manufacturing, the display of the device is projected to a PC.

Since the HMT-1 uses the AOSP version of Android, it cannot use Google Play, but using the following tool it is possible to install an APK on it.

Additionally, since it is possible to use Logcat and the ADB (Android Debug Bridge) console from RealWear Explorer, the HMT-1 becomes quite the indispensable tool.
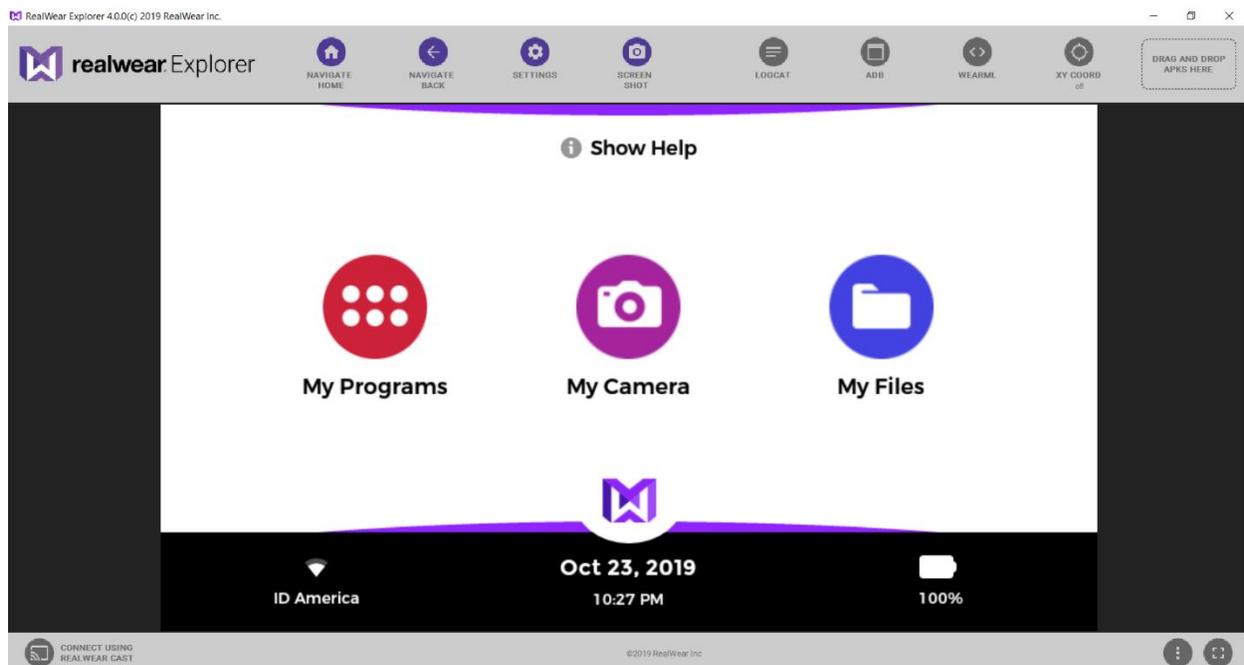
While there are many proprietary apps for the HMT-1, I would like to try out some other generics apps as well.

Starting off with the Google Play developer service, there are several necessary components required to make the apps run. As this device does not have a SIM slot, it is unable to run certain apps which are core on phones. Knowing this, I will take personal responsibility for any tests I perform on this device.
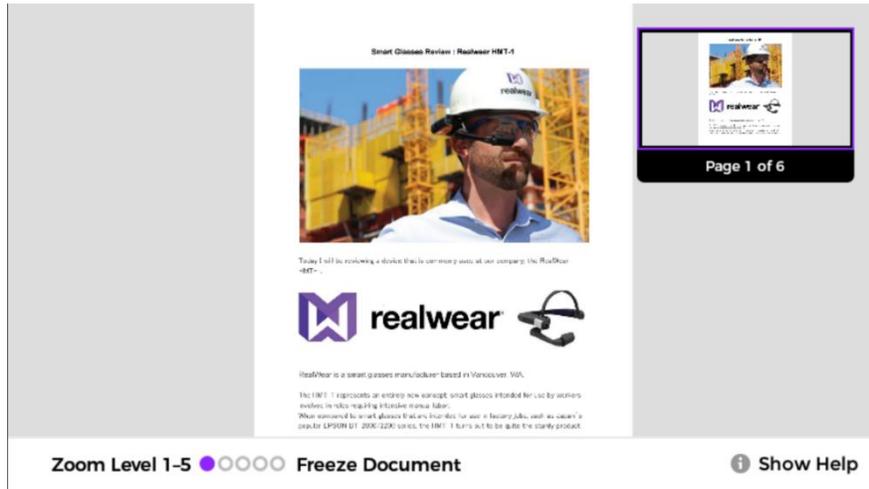
Please understand that we cannot speak for any products that are not our own.

Web Browser (Chrome)
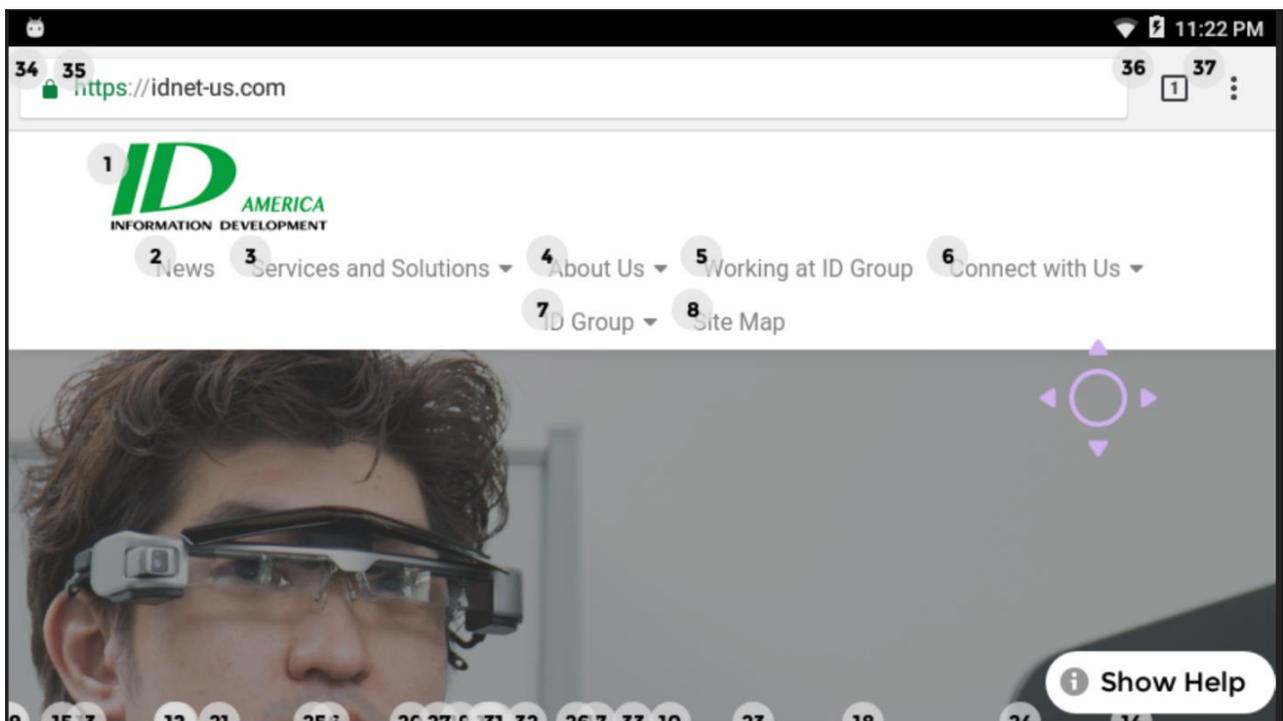
There are no issues in running Google Chrome. As indicated in the web manual, the HMT-1 can easily handle this.

PDF

Using a standard document viewer, it is possible to view PDFs, therefore it is possible to display manuals on the device. The device has 5 levels of zoom; though I do not feel that this is enough, taking into account operability, this is easier to use.

I also tried Acrobat Reader DC, and there were no issues here either.

Map (Google Maps)
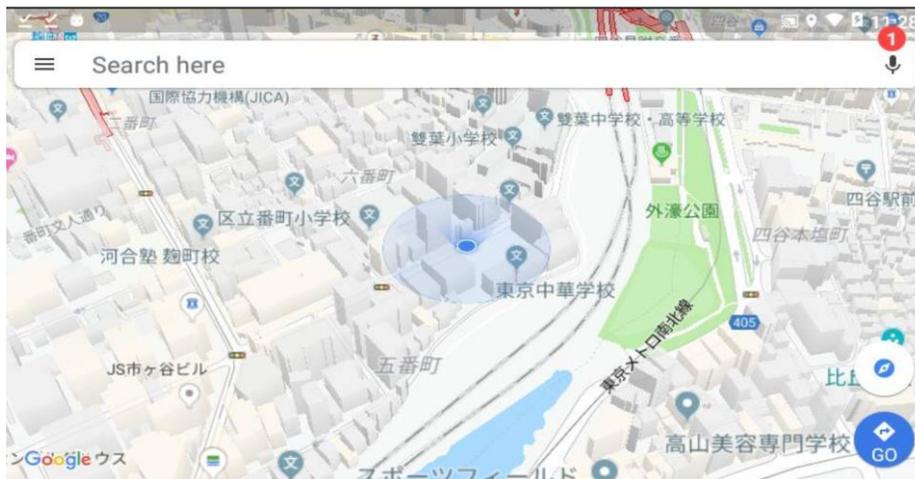
As you can see, since the device has GPS, Google maps can be used without a hitch.

This gives the HMT-1 the potential to be used as a car navigation system, and it looks possible to use it while walking as well. Keep in mind however, that it is illegal to use the HMT-1 while driving on public roads.
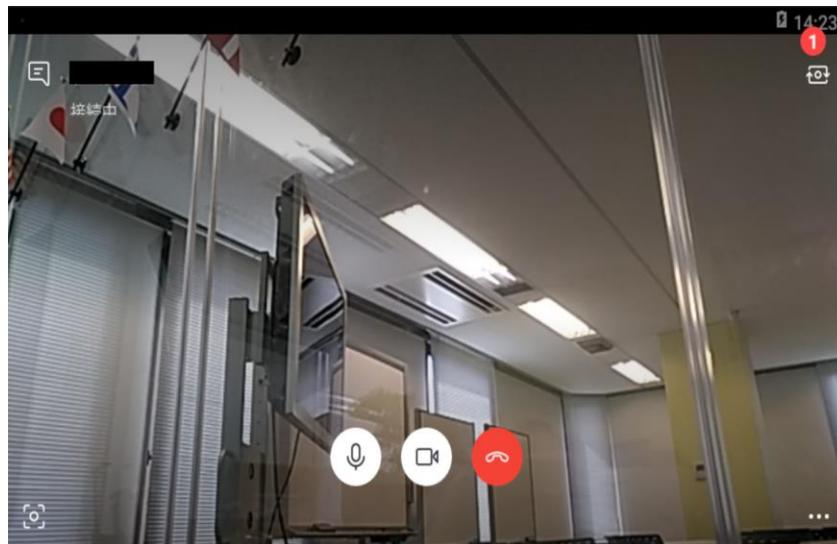
Video
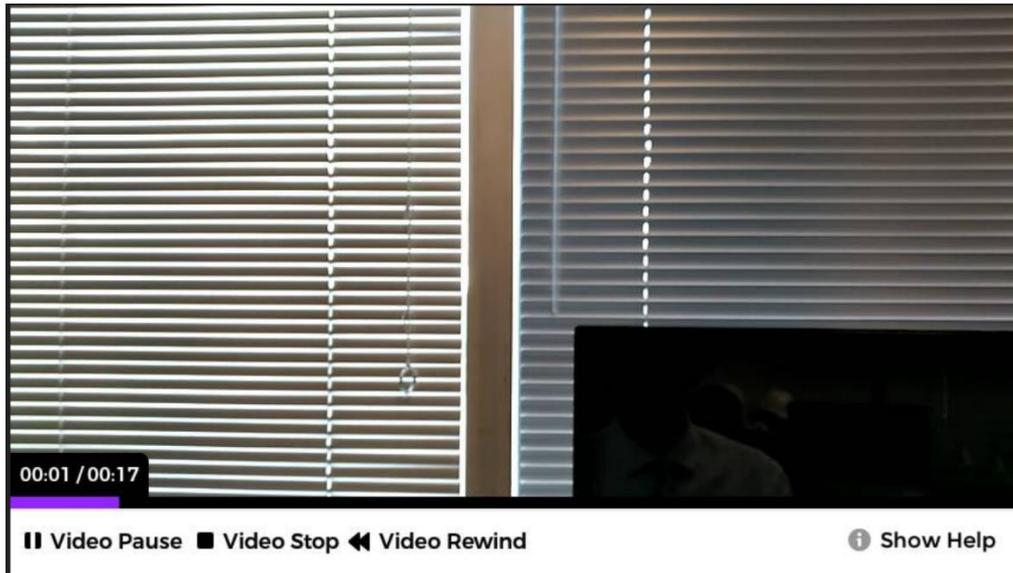
Using a standard media player. MP4 videos play without a problem. Since it is a monocular display, it is probably better not to use it for long videos, but it may be useful for displaying training videos.

There were no issues playing videos using VLC.

Video calls (Skype)

Finally, we tested Skype. There were no issues in making video calls.

How about it? The device was able to run more apps than I initially imagined, so I am rather impressed.

I am getting the impression that even tasks such as long-distance operational management and digital workflow can be done solely through the use of free software.

I did however, run into issues with the hands-free design.

If one were to use software like this with a mouse and keyboard, the experience is about the same as using a normal Android device. When using it with a mouse and keyboard, or wirelessly, or through bluetooth, the experience is quite nice.

When used hands-free, difficulties begin to appear. Since the premise of these apps is that they are meant to be used with touch input, to use them hands-free with the HMT-1, one of the following three input methods is required.

Screen selection

In the case that one cannot go to a link or press a button via voice input, numbers will be displayed next to it. Using bluetooth, it is possible to say something along the lines of "Please go to selection #2" in order to "click" on those links.
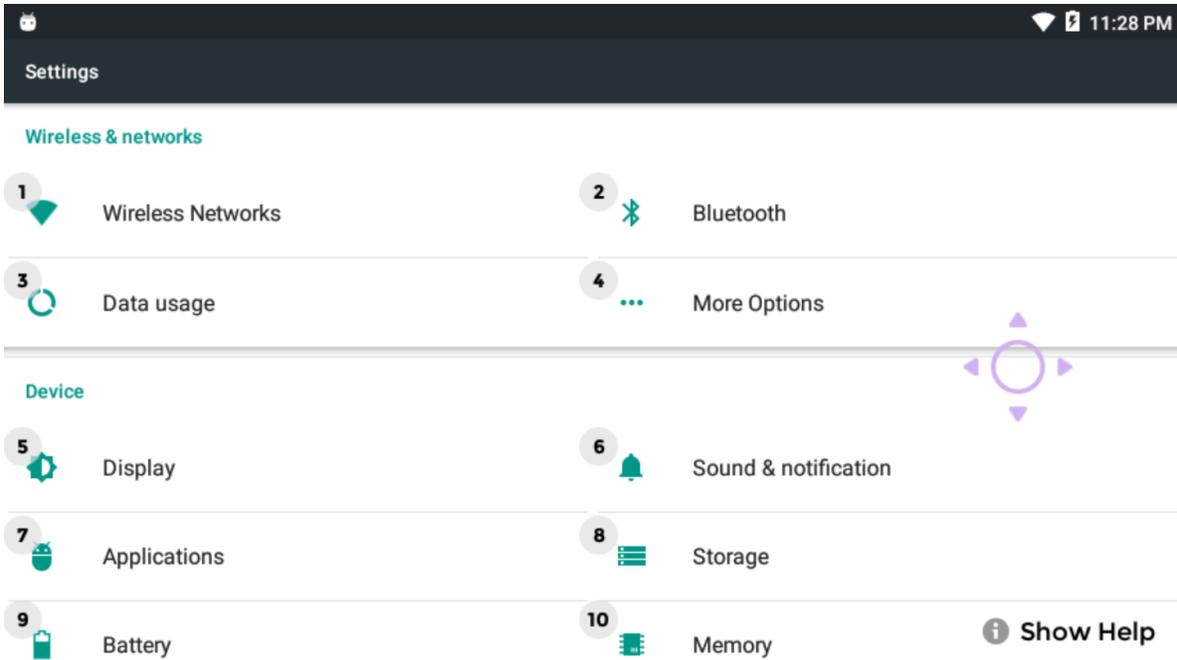
Virtual mouse

The HMT-1 comes with a virtual mouse which displays a cursor on the screen. It is possible to control this cursor by using moving your head, though this takes a bit of practice.
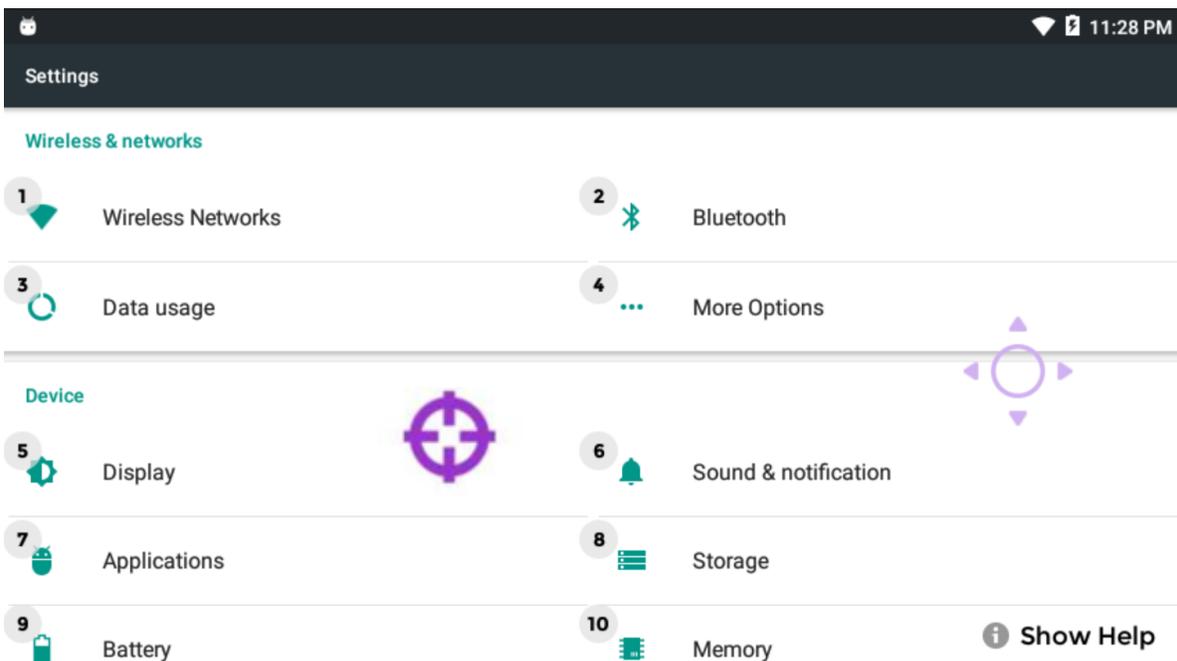
Virtual keyboard

The HMT-1 comes with a virtual keyboard, which can be operated via voice commands.

Using these commands, it is possible to change the spoken language as well. The design even allows for taking in string input that has been converted to QR code.
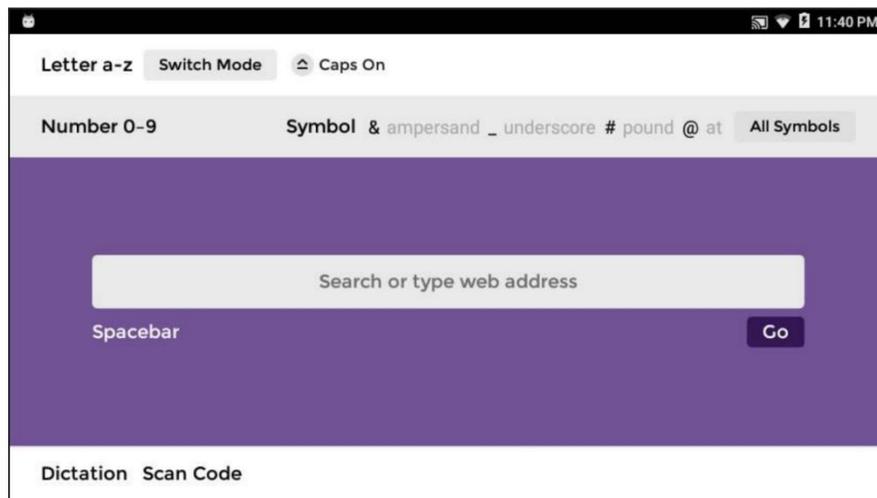
Following the hands-free design philosophy, the HMT-1 allows for various styles of input, but it is still a reality that it cannot reach the same precision as more traditional input devices such as a mouse and keyboard.When used in the workplace, one has to be seriously accustomed to the device, otherwise it is quite difficult to use.

My conclusion is that even though the HMT-1 can run generic apps just fine, in the workplace it is better to stick to specialized apps to keep the workflow running smoothly.

Because of this, when you purchase the HMT-1, make sure to consider its exclusive apps.

With that said, please look forward to my next article.