Aaware AEV13-MZ Embedded Voice and Sound Capture Platform

Embedded Voice Development

The AEV13MZ platform is a fully integrated embedded voice/sound capture solution ready for voice application development and is designed for exploration of various microphone array and language model configurations.

Powering Up the AEV13-MZ Platform

Both micro-USB ports on the miniZed processing board, J2 and J6, will power on the device and have different purposes:

- J2 has USB-UART terminal access to the Linux OS and also JTAG.
- J6 provides auxiliary power and is required for powering J1, a type-A USB connector, for using peripherals such as USB-Ethernet or USB-flash.

Voice Demos

Upon power-up the platform enters a pre-configured embedded voice mode, based on your initial request. The platform begins listening for the wake word “Hey Aware” and LEDs indicate the direction of voice arrival (see figure 1 below) After recognizing the wake word the platform is listening for voice commands from that direction.

Serial Terminal Connection

A PC or MAC can connect (and optionally provide power) to J2 via a micro-USB cable

(see figure 1 below). This is required for terminal access to the embedded Linux environment. This can be used for one-time configuration of the WiFi connection, then WiFi can be used thereafter.

Figure 1: USB Serial Terminal Connection & Directional LED Indication

For terminal access, connect the platform USB port to your laptop USB, then use terminal software to log into the Aaware embedded Linux environment. The terminal serial settings must be 115200,8N1 (115200 baud rate, 8-bit, no parity bits, 1 stop bit). As a general policy, recommended by Ubuntu, one should operate in most cases as a non-root user. For the Aaware platform, the sound capture administrator user ***aawadm*** is the recommended account for using the platform. The default password is ***admaaw17***. However, the root user is also set up with the same password but is disabled for remote login (accessible from aawadm with the ***sudo -i*** command).

WiFi Set Up

The platform uses the WiFi interface named wlan0 using standard wpa_supplicant and

the systemd-networkd methods of managing networks in Debian/Ubuntu. The interface will automatically come up if your AP (access point) is added to the configuration file. To facilitate a quick and easy setup you can use the provided WiFi setup script, ***aawwifisetup.sh*** , and follow the prompts to configure the wpa_supplicant.conf file.

```
aawadm@aawmz0:~$ sudo aawwifisetup.sh
[sudo] password for aawadm: admaaw17
Aaware WiFi configuration
Do you wish to create a new config or append to the existing config?
1) New
2) Append
#? 2
Enter SSID: mywifiname
Enter PSK: mypassword
```

Rescan for networks using the ***iw wlan0 scan |grep SSID*** command. This should trigger a scan and will automatically connect to your interface if it is in range. You can also discover you have connected to your WiFi access point by using the ***ifconfig*** command. This will also reveal your internet address, for example, 192.168.0.102

Remote Login
Once WiFi is up, use secure shell to login as aawadm, e.g., ssh aawadm@192.168.0.102.

Acoustic Source Detection and Separation
The AEV13MZ implements a complete acoustic source detection and separation solution. When an audio source is detected coming from a particular direction, separation and noise reduction algorithms are applied to remove interfering sources and background noise as much as possible. When a wake-word, e.g. "Hey Aware" is detected in one of these sources, an MQTT event message is published. User applications can subscribe to MQTT messages either locally or over the network.

Standard ALSA (Advanced Linux Sound Architecture) interfaces are provided to deliver "clean" audio in the direction of detection. This provides a familiar programming interface that supports a variety of voice applications.

AEV13-MZ Platform Updates and Support
Software updates and technical support are available by contacting Aaware support. Also, see the AEV13-MZ User Guide for more detailed user support. Login or create your account at aaware.com to access the User Guide.

Contact Aaware at: support@aaware.com