APRS@
and
Kenwood TM-D700 Voice Messaging

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Abstract

MacAPRS has had speech capabilities for messaging for many years. WinAPRS has the ability to use wave files for some functions. APRSA Plus has wave file capabilities too. To put voice features on a normal computer is easy. Last year we wrote a paper about wanting a message 'speaking' device using some kind of text to speech system if we could find one. These do exist, but they are not cheap, and also are not very small. Last year, Kenwood introduced the TM-D700 which had the ability to do some of what we wanted, built right into the radio. This 'speech' feature has proved to be very useful. This paper is about the voice messaging feature of the Kenwood TM-D700

APRS Text Messaging

APRS has had messaging capability since the very beginning. This message system is designed for real-time, tactical messaging, and not long email messages. In the 1200 baud environment that most APRS activity operates, this works very well. You can send messages to an individual station, or you can send messages as BULLETINS, or as ANNOUNCEMENTS. The difference between Bulletins and Announcements is that BULLETINS are time sensitive and usually fairly important, such as weather warnings etc. Announcements are things such as meeting or hamfest announcements.

You can send and receive APRS messages to/from computers running APRS. The problem is that if you are running a stand-alone tracker, you cannot send or receive messages. With the introduction of the Kenwood D7 hand held radio with APRS two years ago, you could now send and receive messages from a portable unit without having to carry a full laptop computer and TNC/Radio with you. This was a great improvement for messaging with APRS. Then, last year, Kenwood introduced the D700 mobile radio with APRS features. This radio has all of the same features of the D7, but has a bigger display and somewhat easier text entry.

Now that we have APRS messaging built into our mobile radios, we have another problem. When we receive a message, we have to look at the radio to read it. If you are driving down the highway, this can be hard to do. Last year, we wrote a paper' about a text to speech project . The idea was to have a system that would SPEAK the message to you so you wouldn't have to look at the radio to know what the message was.

APRS Voice Messaging

The introduction of the Kenwood D-700 radio was a pleasant surprise. If you add the VS-3 Voice chip to the Kenwood D-700 radio, it will give you limited speech capabilities. The VS.3 chip is a voice chip that Kenwood has used for several years. This chip has the full alphabet, the numbers, and a few other words. It does not have text to speech capability, but it is very useful.

If you have the VS-3 chip in your 0700 radio, it will spell the call sign of the sending station on all messages sent to you. It will do this for all messages sent to your call sign, regardless of SSID. This is especially useful when you are in your car. That way, you get allerted to messages sent to your home station even if you are mobile. In addition to

this, if a message starts with a percent sign '%', it will spell the entire message. For example, if I send a message to Bob, WB4APR, the message would be:

WU2Z>APRS::WB4APR %ICU2

The D700 radio would then say:

'W' 'U' '2' 'ZED' I SEE YOU TOO

In addition to the alphabet and numbers, it has some extra words. These words can be accessed by putting their codes in square brackets. For example:

WU2Z>APRS::WB4APR :%ICU[6b]2[62]

Will say: "I SEE YOU ON TWO METER"

Kenwood D-700 VS-3 vocabulary

Code	Word	Language	Code	Word	Language
			40	0	Japanese
1	A	Japanese	41		Japanese
2	B	Japanese	42	2	Japanese
3	S	Japanese	43	3	Japanese
4	U	Japanese	44	4	Japanese
5	V	Japanese	45	5	Japanese
6	A	English	46	6	Japanese
7	B	English	47	7	Japanese
8	C	English	48	8	Japanese
9	D	English	49	9	Japanese
OA	E	English	4A	TEN (TEN means point)	Japanese
06	F	English	48	VFO	Japanese
oc	G	English	4c	IVR	Japanese
OD	H	English	40	m l	Japanese
OE		English	4E	Call	Japanese
OF	J	English	4F	Band	Japanese
10	K	English	50	blank (1 OOmsec)	
11	L	English	51	blank (200msec)	
12	M	English	52	High	English
13	N	English	53	Medium	English
14	0	English	54	Low	English
15	P	English	55	EL	English
16	Q	English	56	Error	English
17	R	English	57	Enter	English
18	S	English	58	Clear	English
19	T	English	59	Reset	English

1A	U	English	5A	Memory	English
1B	V	English	5B	Squelch	English
1C	W	English	5c	Power	English
1D	X	English	5D	Pound	English
1E	Y	English	5E	Star	English
1F	Z	English	5F	Hello	English
20	Blank (20msec)		60	MHz	English
21	Blank (4Omsec)		61	kHz	English
22	High	Japanese	62	Meter	English
23	Middle	Japanese	63	Centimeter	English
24	Low	Japanese	64	dB	English
25	EL	Japanese	65	Minus	English
26	Error	Japanese	66	Plus	English
27	Enter	Japanese	67	Open	English
28	Clear	Japanese	68	Channel	English
29	Reset	Japanese	69	Over	English
2A	Memory	Japanese	6A	Menu	English
2B	Squelch	Japanese	6B	on	English
2c	Power	Japanese	6C	Off	English
20	Sharp	Japanese	6D	UP	English
2E	Star	Japanese	6E	Down	English
2F	Hello	Japanese	6F	IF	English
30	MHz	Japanese	70	0	English
31	KHz	Japanese	71	1	English
32	meter	Japanese	72	2	English
33	Centimeter	Japanese	73	3	English
34	dB	Japanese	74	4	English
35	Minus	Japanese	75	5	English
36	Plus	Japanese	76	6	English
37	AKI (AKI means vacant)	Japanese	77	7	English
38	Channel	Japanese	78	8	English
39	Over	Japanese	79	9	English
3A	Menu	Japanese	7A	Point	English
38	On	Japanese	78	VFO	English
3c	Off	Japanese	7c	fm	English
30	UP	Japanese	7D	FM	English
3E	Down	Japanese	7E	CALL	English
3F	FF	Japanese			

Conclusion

Kenwood continues to be an innovator in the design of radios for Amateur Radio operations. This speech capability is an added capability that has proven to be useful for the mobile APRS operator. I continue to look forward to new and innovative ideas.

MacAPRS and WinAPRS are being updated so that they will ‘speak’ these messages just like the D700 does. This way you can hear them ‘correctly’ instead of having to understand the codes and intent of the sender.

Web Sites of Interest

htttx//atxs.rutgers.edu/

http://www.tapr.org/

htto://www. kenwood.net/

http://aprs.rutgers.edu/D700Voice.html

[i] Voice Messageing System, ARRL DCC, Septermber 1999, Phenoix Arizona, pp 100-101