

Chapter 38 of the Society of Broadcast Engineers

SBE

EL PASO - LAS CRUCES - JUÁREZ

AUGUST 2019

PO Box 3561 El Paso, TX 79923-3561 www.kint98.com

NEWS

IoT MICROPHONE

VESPER introduces digital MEMS microphone with integrated ADC

Vesper has introduced a new digital microphone for Internet of Things devices, aiming to amplify its share of the more than \$1 billion MEMS microphone market amid the voice assistant boom being led by Amazon, Google and Apple. The VM3000 can shut out more signal interference than analog MEMS mics, making it ideal for devices ranging from smart speakers and thermostats to wearables and headphones.

Vesper, which has raised \$38 million in funding from Amazon, AAC Technologies, Bose, Baidu and other investors, is tapping the emerging market for Internet of Things devices that can respond to voice assistants like Amazon's Alexa and Google's Assistant. The company makes microphones that it says consume less power and are more durable than traditional ones. That way, they can be slapped on always-on, battery-powered devices. The microphones use piezoelectric materials that create an electric charge when warped by sound waves, which helps to lower power consumption versus capacitive microphones, the current industry standard. Vesper's architecture is also much more durable than capacitive MEMS microphones, which can be impaired by water, dust, sweat, oil and other contaminants. But piezo MEMs

mics are waterproof, dustproof and shockproof, Vesper said.

The VM3000 is an omnidirectional, bottom-port digital MEMS microphone targeted at both wired and wireless consumer audio devices. The analog to digital converter (ADC) inside the PDM microphone is designed to amplify the audio signal, translate it into digital and then relay it directly to an audio codec or application processor, Vesper said. The chip is designed as a drop-in replacement for capacitive MEMS microphones now on the market.

Vesper's VM3000 is also significantly faster than other MEMS microphones, waking up the system in a fraction of a fraction of a second after hearing a sound.

Capacitive microphones tend to have startup times ranging from 1/2 to 1/10 of a second, making them the bottleneck for voice-activated devices. Vesper's piezo MEMS mics can start up in 1/500 of a second, which helps them to more accurately pick out keywords or wake-up commands.

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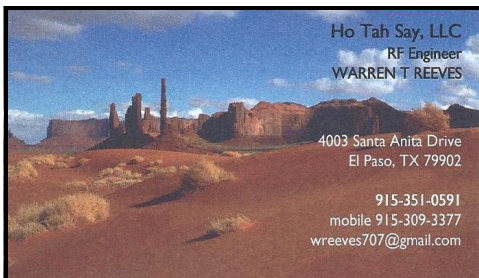
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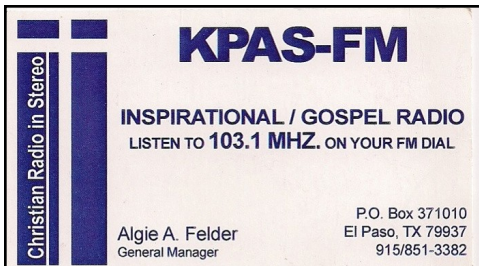
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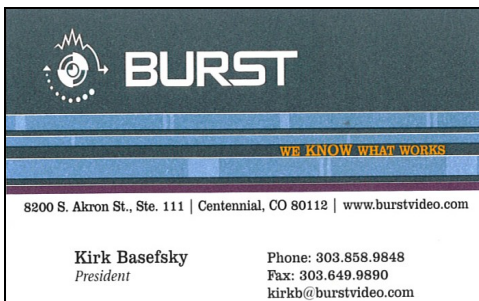


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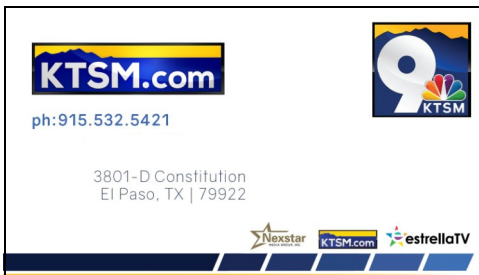
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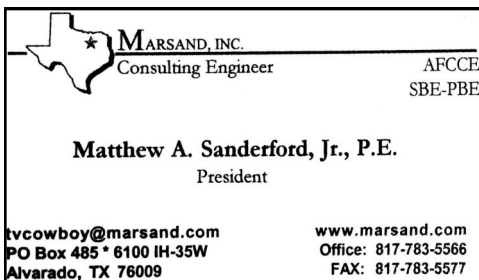
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Vesper's other chips include the VM1000, VM1001 and VM1010, which uses the sound of someone's voice to wake the system from full power-down. The VM2020 is designed to record in noisy environments with volumes up to 152 dB, which is loud enough to blow out a eardrums.

The VM2020 can be used in speakers to listen through loud playback, headphones to cancel out howling wind or on factory floors to detect a machine malfunctioning.

Over the last year, Vesper has been boosting production into the tens of millions of units annually to challenge other players in the MEMS microphone space ranging from Analog Devices and Cirrus Logic to Goertek and Knowles, which holds the biggest share of the global market.

Knowles sells more than a billion capacitive MEMS microphones per year along with audio DSPs. Analog MEMS mics account for over 75% of all current sales.

"The VM3000 is our first digital microphone," said Matt Crowley, the startup's chief executive, adding that it will allow Vesper's MEMS microphones to be used in an even broader range of applications and paired with virtually any audio chip. "It will be especially useful for large arrays, physically large systems and situations where there is a lot of RF interference." It can be used as a standalone sensor or as part of a larger array of microphones.

The digital microphone delivers signal to noise performance of up to 63 dB and operates at a maximum volume of around 122 dB before becoming distorted. The compact chip measures 3.5 millimeters by 2.65 millimeters by 1.3 millimeters. The VM3000 is currently sampling to early customers. Vesper plans to push it into volume production in the fourth quarter of 2019.

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EL PASO, TX SBE CHAPTER 38 MEETING MINUTE

DATE **7/09/2019** LOCATION: **LUBY'S (UTEP) EL PASO, TX.**

MEETING CALLED TO ORDER: 12:30 PM, BY ANTONIO CASTRO.
THERE WERE 9 ATTENDANTS.

REPORT OF THE SECRETARY: MINUTES IN THE JULY NEWSLETTER.
ACCEPTED BY DAVID GRICE, SECONDED BY NORBERT MILES.

REPORT OF THE TREASURER: \$ 3054.52 IN THE BANK. ACCEPTED BY WARRANT REEVES, SECONDED BY DAVID GRICE.

REPORT OF THE CERTIFICATION COMMITTEE: DEMIAN TREJO, STUDENT OF RIVERSIDE HIGH, GOT CTO.

REPORT OF THE MEMBERSHIP COMMITTEE: NO REPORT

REPORT OF THE FREQUENCY COORDINATOR COMMITTEE: NM FOR TOMORROW, TX IS TODAY.

REPORT OF THE SCHOLARSHIP COMMITTEE: NO REPORT.

REPORT OF THE WEBSITE COMMITTEE: 2760 HIST LAST TIME. NOW 2783= 23.

REPORT OF THE EAS CHAIRMAN: MONTHLY TEST OF TX & NM WERE FINE.

REPORT OF THE PROGRAM COMMITTEE: NO REPORT

UNFINISHED BUSINESS: NONE.

NEW BUSINESS OR ANY ITEMS FOR THE CHAPTER INTEREST: NONE.

OTHER: TALKED ABOUT STATUS IN WAYLER TRAM. NOTHING IS NEW.

NEXT MEETING DATE AND LOCATION: AUGUST 13, LUBY'S (UTEP) AT NOON

MEETING ADJOURNED: AT 13 :00 PM AM.

TAB 2019 THREE DAYS AWAY !!
AUGUST 7 & 8
JW MARRIOTT DOWNTOWN
AUSTIN

AUGUST PROGRAM

IN JULY, WE HAD OUR REGULAR CHAPTER MEETING AT THE LUBY'S RESTAURANT. GOOD SUGGESTION BRUNO !!!!!

FOR THIS MONTH, WE ARE GOING TO HAVE OUR REGULAR MEETING AGAIN AT THE LUBY'S RESTAURANT.

IT IS VERY IMPORTANT TO ATTEND !!

WHEN: TUESDAY AUGUST 13, 2019.

PLACE: LUBY'S RESTAURANT

TIME: 12:00 PM

