Ultrasonic Automated Watering System

Dislike your recorded voice? It's not you: How Narrowband Frequencies alter the way women sound and perpetuate gender bias

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Preface

The diverse applications of audio engineering give it important implications far beyond the limits of the field. For example, ultrasonic signals can control agricultural systems, and apparently technical decisions about audio standards can exacerbate social inequities.

How can noise at higher frequencies be filtered out without impairing the sensor's reading of the desired audio information within the same range? A plant care system was developed that aids forgetful plant owners by applying plant-produced ultrasonic signals. Most hands-off watering systems are run by a timer, however this can lead to over- or under-watering as the plant's needs change with time. Plants produce ultrasonic sounds when they dry out. Such signals can be used as a trigger to start watering, averting the defects of a timer-based system and meeting the plant's needs before it shows physical distress. The final prototype could not read the ultrasonic signals due to time and budget constraints. With more resources, however, future researchers may develop a working system that serves those who feel they could not own a plant otherwise.

How are advocates of gender equality striving to mitigate discriminatory biases associated with gender distinctions in the human voice? Though gender bias related to biological differences in the human voice is pervasive, it is subtle and therefore often overlooked. Social groups, such as companies, charities, and advocacies, respond differently to gender biases associated with voice technology. These group's responses vary from training women to speak differently, to calling for a switch to industry norms that benefit all genders equally, to advocating for a more inclusive design process.