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6.101 Final Project

AM Radio Transmission Abstract

Amplitude modulation (AM) radio transmissions are commonly used in commercial and private applications, where the aim is to broadcast to an audience - communications of any type, whether it be someone speaking, Morse code, or even ambient noise. In AM radio frequencies (RF) transmissions, the amplitude of the wave is modulated and encoded with the transmitted sound, while the frequency is kept the same. Furthermore, AM radio transmissions can occur on different frequencies, with broadcasts of the same frequency interfering with each other. Therefore, it is important to select a unique – or as unique as possible – frequency band in order to transmit clean, interference free, communications. And currently, many 1-way and 2-way radios, with transmission ability have some digital component in order to improve different aspects of the radio. Thus, for my 6.101 final project, I plan to build a fully analog circuit, in keeping with the theme of the class, that can be used to broadcast to specific AM frequencies. Thus, the goal is to broadcast as far as possible while minimizing the power consumed. Moreover, I plan to be able to receive these AM transmissions through an existing receiver or one built alongside this project. I expect to run into difficulties when extending the reception range as it may arise from the antenna length, the RF transmission power, and the number of transistor stages. I also expect noise to be an issue, since the message is stored in the amplitude and any type of noise will distort the communication.