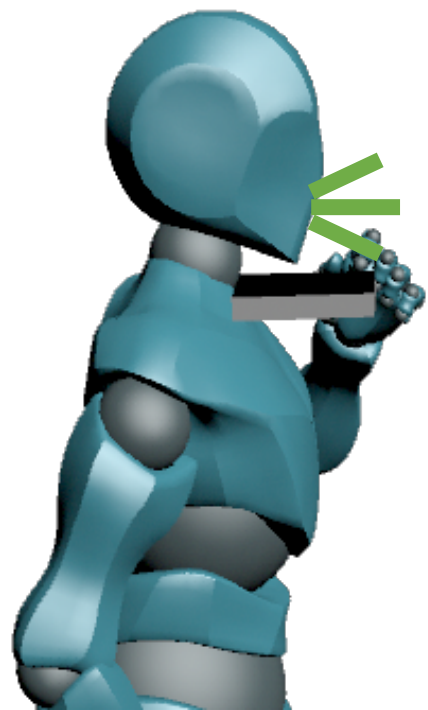


# Normal Authentication

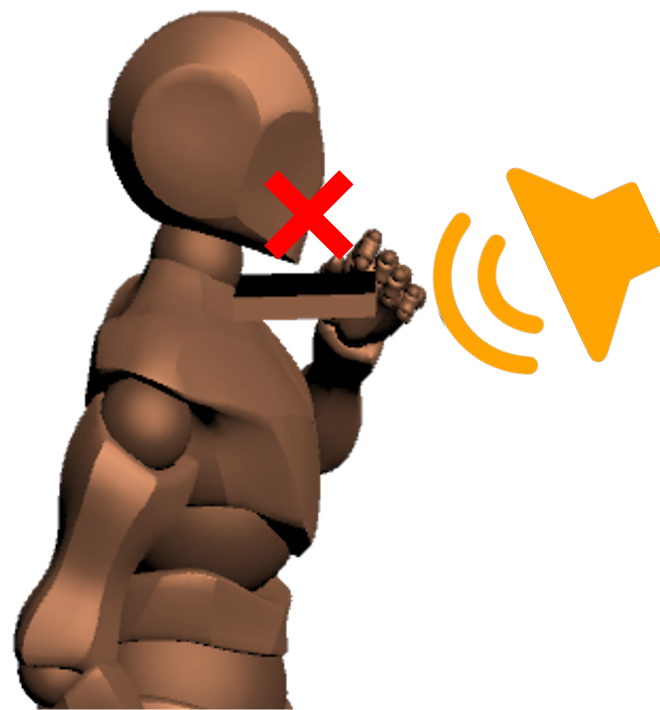


Legitimate User

# Attacking Scenarios

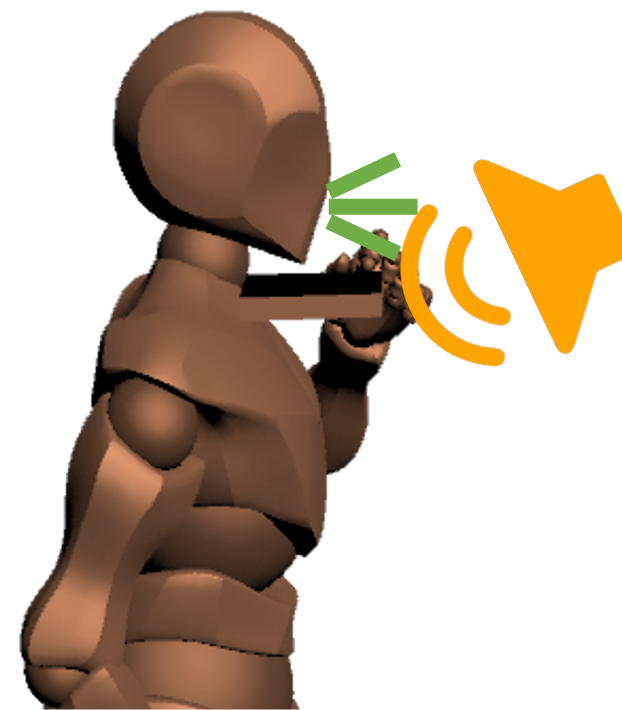


Simple Playback Attack



Attacker

Mimicry Attack



Attacker

Sophisticated Mimicry Attack

 Pre-recorded

 Synthesized

 Converted