



Design Brief

Client	Boeing
Target Consumer	Boeing Board of Directors
Designer(s)	Matthew Jeide
Problem Statement	The board of directors at Boeing needs an electronic voting system to determine candidate selection. The current process requires a method to accurately count votes and determine if a candidate is elected based on majority rule, with a specific tie-breaking mechanism.
Design Statement	Design and build an electronic Majority Vote voting machine using AOI (AND, OR, Inverter) logic gates that can accurately tally votes from four board members and determine candidate selection.
Criteria	<ol style="list-style-type: none">1. The voting machine must correctly determine candidate election based on board member votes2. Each board member (President, Vice President, Secretary, Treasurer) has one vote3. A candidate requires a majority (more than 50%) of Yes votes to be elected4. In case of a tie, the President's vote will break the tie
Constraints	<ol style="list-style-type: none">1. Use only AND, OR, and Inverter logic gates2. Specifically use Integrated Circuits 74LS08 (AND gates) and 74LS32 (OR gates)3. Must be able to handle all possible voting scenarios4. Tie-breaking mechanism must prioritize the President's vote
Materials	<ol style="list-style-type: none">1. Computer with circuit design software2. MyDAQ3. Integrated Circuits (74LS08, 74LS32)4. 4. 22-gauge solid wire5. 5. Multipurpose Wire Stripper