Functionality: Team 12's ART is a mechatronic stage show responding to 4 unique types of user input to progress through a story. The order of user interactions is relevant and requires a mixture of large scale and small scale motion. The types of interaction also vary between analog, digital, contact, and non-contact, requiring the user to perform a wide variety of tasks. As time passes, the background is lit by LEDs in different colors to simulate the progression of a day and night. The functionality at each state in the state machine is described below.

Idle: In the idle state, the machine waits for a user to approach. At set, small time intervals, it polls an event checker looking for changes in an IR proximity sensor (mounted in the front, facing the user) reading until a user is detected nearby. When this happens, the "welcome" lights turn on and the state switches to the open state.

Open: In the open state, the machine waits for the user to press the start button. If no user interaction is detected within thirty seconds, the machine goes to the reset state. If the start button is pressed, the lights and theme music begin, the curtain is opened, and the state switches to wind.

Wind: In the wind state, the machine waits for the user to begin turning a windmill by blowing on it, at which point the audio changes to a blowing wind clip. If the start button is pressed or no user interaction is detected within thirty seconds, the machine goes to the reset state. As long as the user keeps the windmill spinning, the speed of the windmill is interpreted as an analog signal that causes trees mounted on servos to billow at varying speeds. Turning the windmill sufficiently fast causes a thunder sound to play. If the user stops turning the windmill and at least fifteen seconds have passed since the windmill first started turning, the billowing trees return to rest, a rain sound effect is played, and the state becomes grow.

Grow: In the grow state, the user must shine the "sun" flashlight at three phototransistors. If the start button is pressed or no user interaction is detected within thirty seconds, the machine goes to the reset state. While the grow state is active, the photodiodes are polled to check for light input, and when this state is not active, the polling is halted. The flashlight is rigged to send a regulated pulsing IR light, and when this signal is detected by a phototransistor, a new "live" tree is raised by a corresponding servo and a growing sound effect is played. When all three new trees have been raised, the village is raised up, the audio plays a hooray sound clip, and the state switches to construction.

Construction: In the construction state, the machine simply waits for sufficient time to pass, ten seconds, so that the user can enjoy the final scene. Sounds of crickets and owls hooting play at nightfall. When this time is up, the state switches to reset. If the start button is pressed, the machine goes to the reset state as well.

Reset: In the reset state, all individual services are reset. The curtain closes, the servos return to a resting position, and the lights and audio turn off. The state then returns to idle.