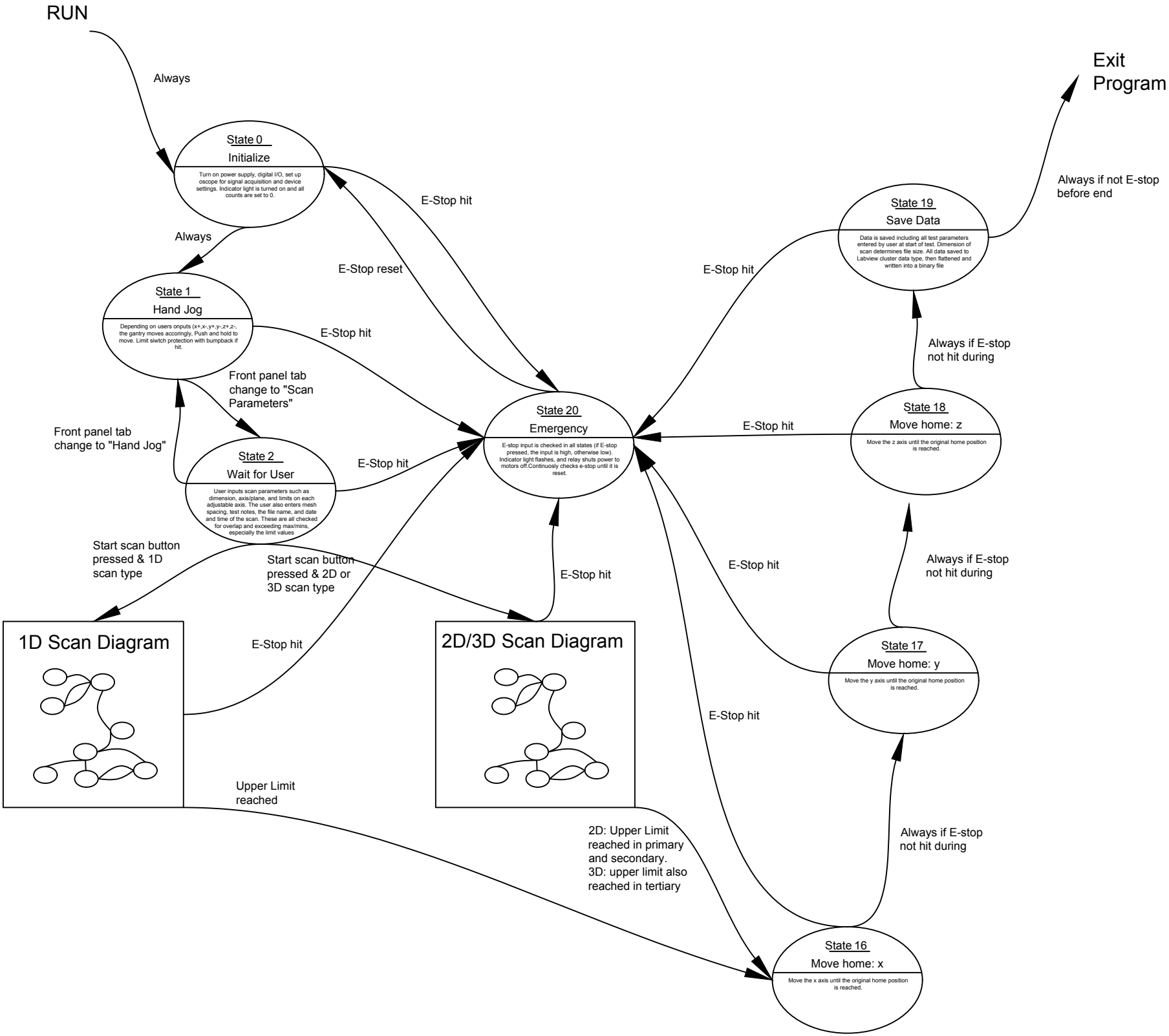
RUN
Always
State 0
Initialize
Turn on power supply, digital I/O, set up oscope for signal acquisition and device settings. Indicator light is turned on and all counts are set to 0.
Always
State 1
Hand Jog
Depending on users onputs (x+,x-,y+,y-,z+,z-, the gantry moves accoringly, Push and hold to move. Limit siwtch protection with bumpback if hit.
Front panel tab change to "Scan Parameters"
Front panel tab change to "Hand Jog"
State 2
Wait for User
User inputs scan parameters such as dimension, axis/plane, and limits on each adjustable axis. The user also enters mesh spacing, test notes, the file name, and date and time of the scan. These are all checked for overlap and exceeding max/mins, especially the limit values
Start scan button pressed & 1D scan type
Start scan button pressed & 2D or 3D scan type
1D Scan Diagram
2D/3D Scan Diagram
Upper Limit reached
2D: Upper Limit reached in primary and secondary.
3D: upper limit also reached in tertiary
State 20
Emergency
E-stop input is checked in all states (if E-stop pressed, the input is high, otherwise low). Indicator light flashes, and relay shuts power to motors off.Continuosly checks e-stop until it is reset.
E-Stop hit
E-Stop reset
E-Stop hit
E-Stop hit
E-Stop hit
E-Stop hit
E-Stop hit
E-Stop hit
E-Stop hit
State 16
Move home: x
Move the x axis until the original home position is reached.
Always if E-stop not hit during
State 17
Move home: y
Move the y axis until the original home position is reached.
Always if E-stop not hit during
State 18
Move home: z
Move the z axis until the original home position is reached.
Always if E-stop not hit during
State 19
Save Data
Data is saved including all test parameters entered by user at start of test. Dimension of scan determines file size. All data saved to Labview cluster data type, then flattened and written into a binary file
Always if not E-stop before end
Exit Program