TCAS Pinsetter

Motor 1: Sweep - <small>Sweeps away bowling pins from lane surface</small>

Motor 2: Table - <small>Raises or lowers the bowling pin container to the lane</small>

Motor 3: Table Fingers - <small>Grabs bowling pins left standing after bowling</small>

Motor 4: Tipping - <small>Moves bowling pins from holding area to Table</small>

Hub 1: Drive Hub

Hub 2: Distributor Hub

Hub 3: Sensor Hub

Motor 1: Elevator - <small>Moves bowling pins to top of machine</small>

Motor 2: Distributor Traverse - <small>Lays bowling pins onto distributor bands</small>

Motor 3: Distributor Bands - <small>Moves bowling pins to holding area</small>

Sensor 1 Bowling Pin (Color) Sensor - <small>Detects bowling pins coming from elevator</small>

Motor 1: Distributor Back/Forth - <small>Moves bowling pins from back row to front row of holding area</small>

Sensor 1: Triggering (Distance) Sensor - <small>Detects bowling balls</small>

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Cycle 1		Cycle 2	Distributor	Elevator
Triggering sensor		Triggering sensor	Bowling Pin Sensor	If no triggering > 40s
Sweep		Sweep	Wait 0.5s	Stop Elevator
Table Down		Wait 3 seconds	Distributor Traverse	
Table Fingers		Sweep	Count Distributor Cycle	Triggered
If fingers go far		Wait for holding area to be full		Start Elevator
Yes	No	Tipping	If Distributor Cycle equals 3 OR 7	
Table Up	Table Up	Table down	Distributor Traverse	
Sweep	Sweep	Table Up and Sweep	Distributor Back/Forth	
Wait for holding area to be full	Table Down		Distributor Bands	
Tipping	Table Up and Sweep		Tell holding area is full	
Table down	Wait for cycle 2		Distributor Bands	
Table Up and Sweep			Distributor Back/Forth	
			Distributor Traverse	

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Summary:

- Drive hub needs to know when Triggering sensor (sensor Hub) has sensed.
- Drive hub needs to know when holding area is full (Distributor Hub).

- Distributor hub needs to know when Triggering sensor (Sensor Hub) has sensed.
- Distributor hub needs to know when the Distributor Back/Forth is back. (Sensor Hub)
- Distributor hub needs to know if holding area is empty (Drive Hub)

- Sensor hub needs to know when to move the distributor back/forth, and how much since it differs depending on the distributor cycle count. (Distributor Hub)