

Week-03-L-02

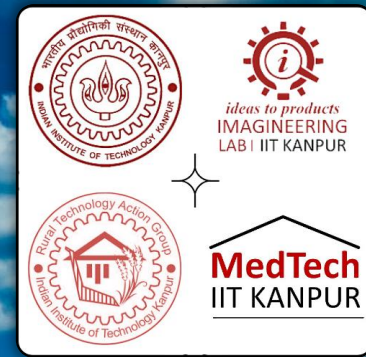
Value Engineering Agricultural Plan

Function Phase Continuation

Functional Analysis & System Technique (FAST) cont..

Dr. Amandeep Singh

Dept. of Mechanical Engineering
Indian Institute of Technology Kanpur



Layout of FAST Diagram

A. Scope of the Problem:

Scope line

B. Highest Order Function(s):

*Main Purpose of study
(Product/Service)*

C. Lowest Order Function:

Triggers (support) the study

D. Basic Function(s):

Right of the left scope line

Layout of FAST Diagram

E. Concept: *Current or proposed approach*

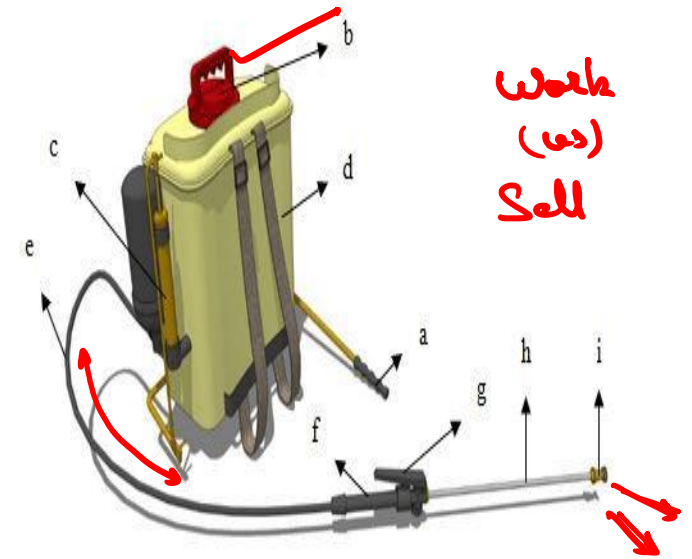
F. Objective or Specifications:
Specific Conditions

G. Critical Path Function(s):
How? Why?
Major → Basic Function
Minor → Supporting functions

H. Dependent Functions:
How?

Function Definition Worksheet: Knapsack Sprayer

Sr. No	Part Name	Function Definition		Function Location			
		Verb	Noun	Part		Assembly	
				Primary	Secondary	Primary	Secondary
1.	Tank	Store	Solution	✓			✓
		Resist	Corrosion		✓		✓
		Prevent	Leakage		✓		✓
2.	Tank Lid	Secure	Closure	✓			✓
		Allow	Opening		✓		✓
		Allow	Inspection		✓		✓
3.	Pump	Generate	Pressure	✓			✓
		Control	Flow		✓		✓
		Generate	Motion		✓		✓
4.	Hose	Transport	Liquid	✓			✓
		Dispense	Solution		✓		✓
		Enable	Extension		✓		✓
5.	Trigger	Control	Flow	✓			✓
		Apply	Force		✓		✓
		Activate	Spray		✓		✓
6.	Lance/Wand	Target	Spraying	✓			✓
		Dispense	Solution		✓		✓
		Provide	Extension		✓		✓
7.	Nozzle	Spray	Solution	✓		✓	✓
		Distribute	Spray		✓		✓
		Control	Flow		✓		✓
8.	Pump Handle	Perform	Pumping	✓			✓
		Apply	Force		✓		✓
		Generate	Motion		✓		✓
		Transfer	Force		✓		✓
9.	Straps	Secure	Attachment	✓			✓
		Distribute	Weight		✓		✓
		Transfer	Force		✓		✓
10.	Filter	Ensure	Filter	✓			✓
		Prevent	Clog		✓		✓
		Remove	Debris		✓		✓



Work
 (us)
 Sell

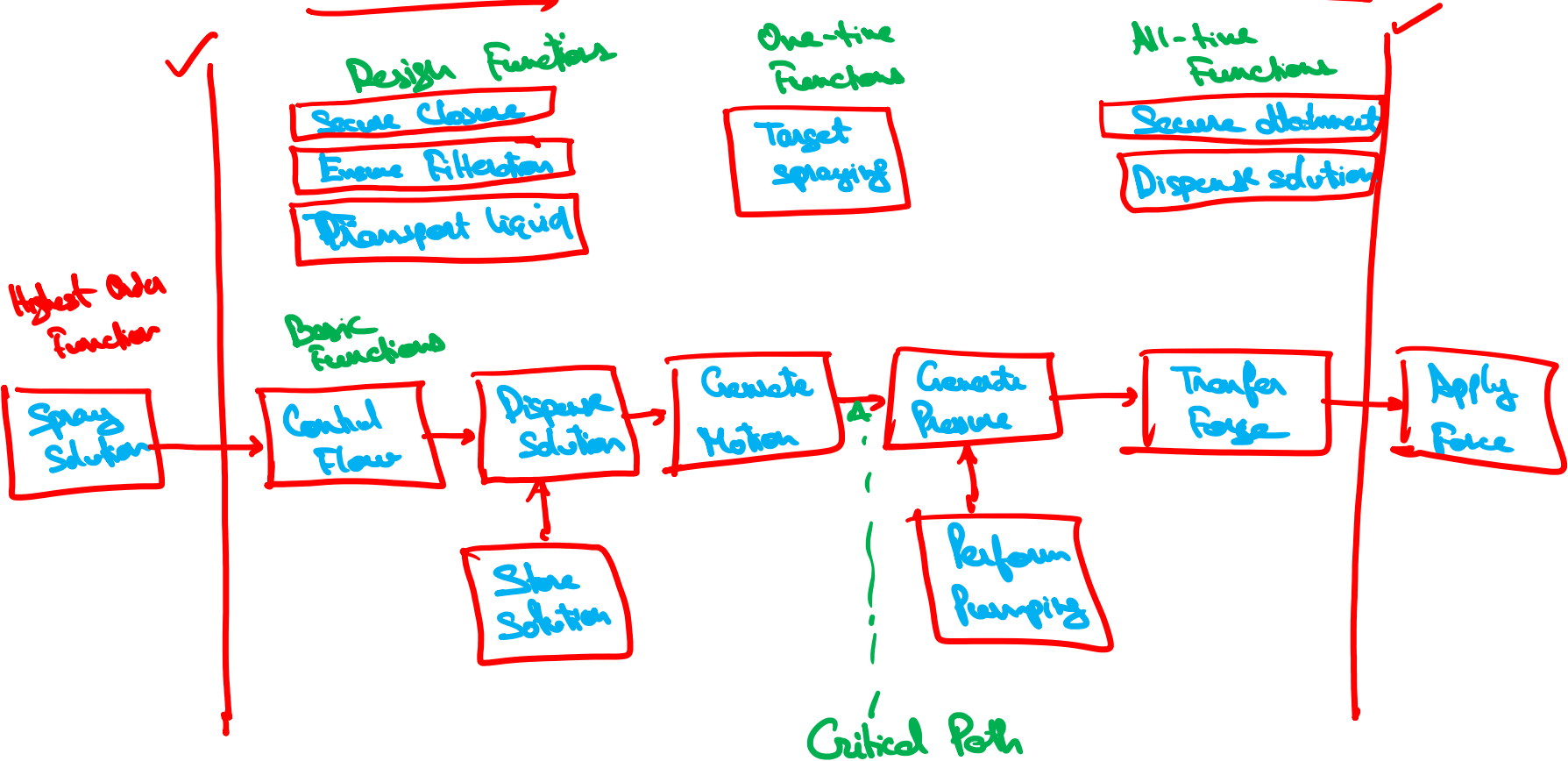
Functions:

- ✓ Store Solution
- ✓ Secure Closure
- ✓ Generate Pressure
- Transport Liquid
- ✓ Control Flow
- ✓ Target Spraying
- ✓ Spray Solution
- ✓ Perform Pumping
- ✓ Secure Attachment
- Ensure Filter
- ✓ Generate Motion
- ✓ Transfer Force
- ✓ Dispense Solution
- ✓ Apply Force

FAST Diagram of a Knapsack Sprayer

How? →

← Why?



Thank You

