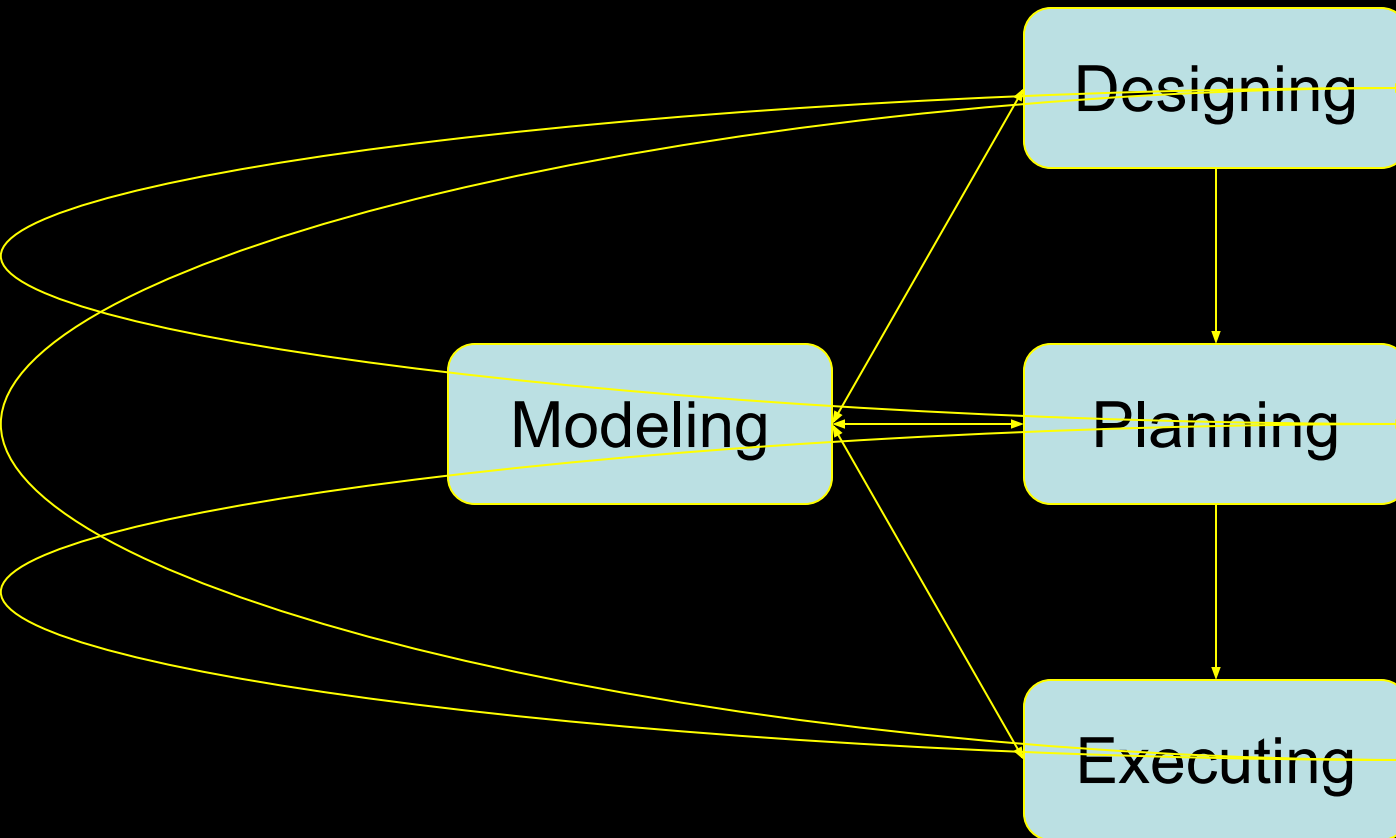




Information Technology Goals

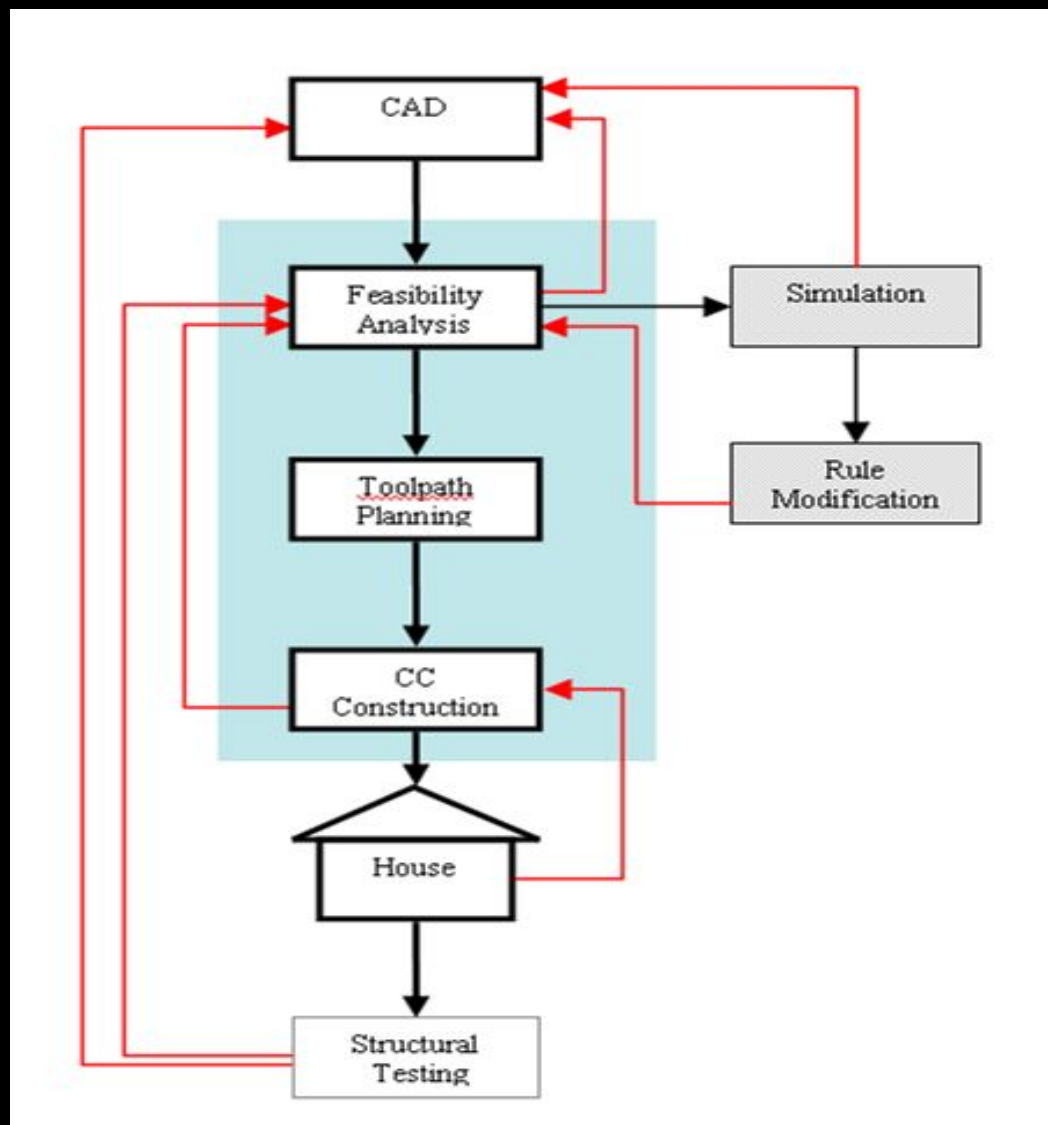
- Perform the fundamental research and develop the software components for automating mega-scale fabrication
- Integrate components with each other and with robots from other thrusts

Four Classes of Software



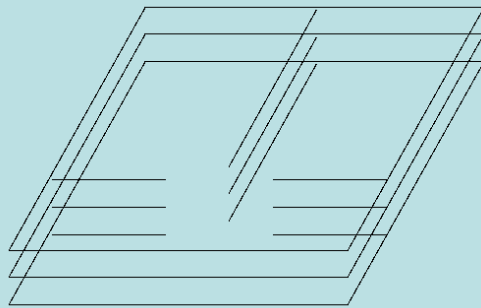


Research Plan

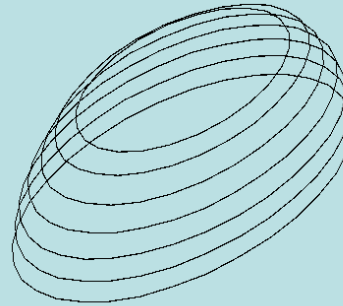




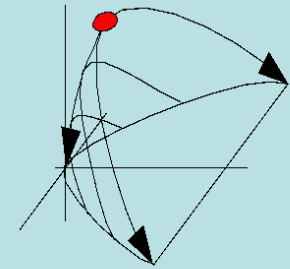
Layering various geometries



(a)



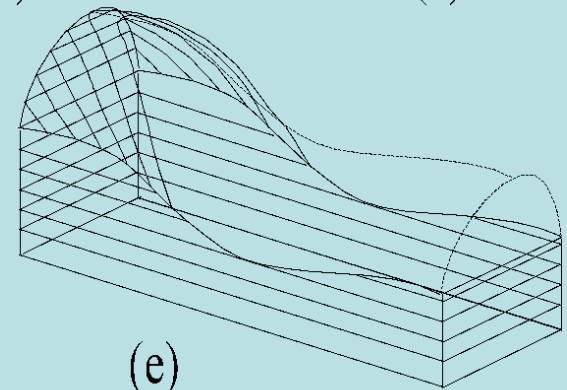
(b)



(c)



(d)

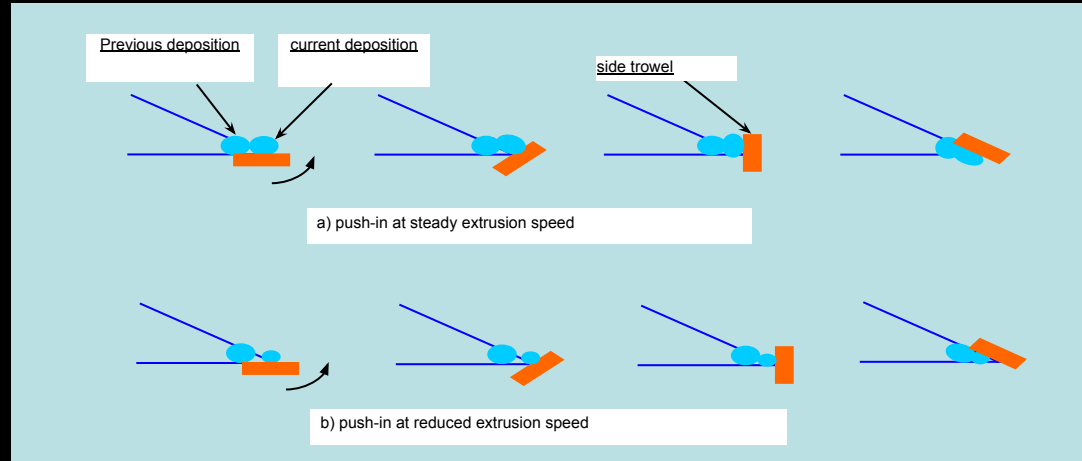


(e)

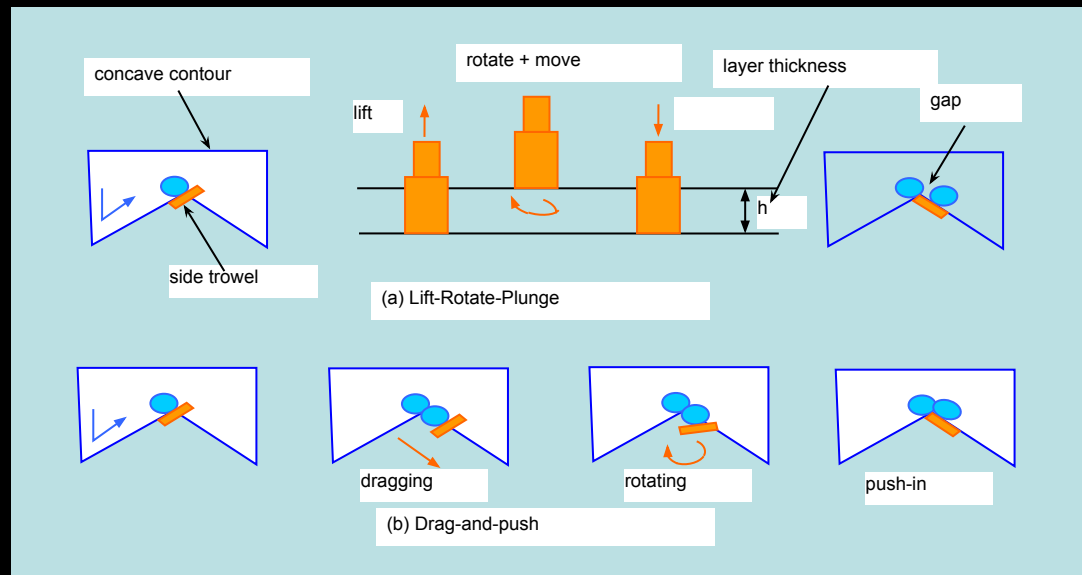
Trowel path planning



Trowel path planning and nozzle control around sharp convex corners

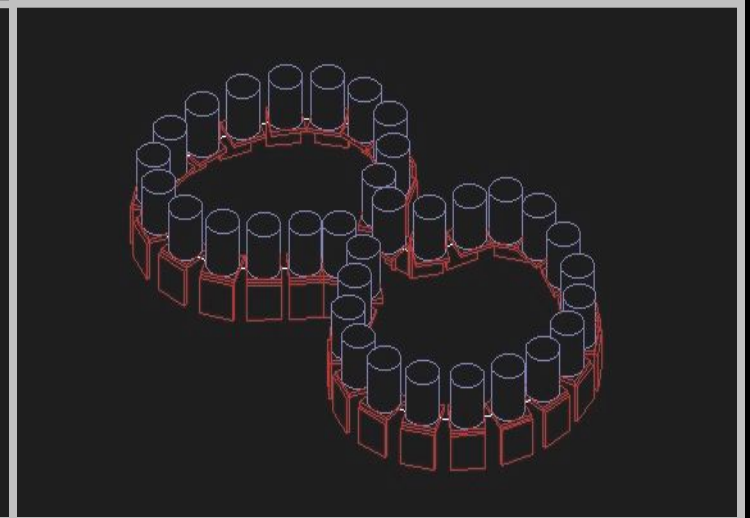
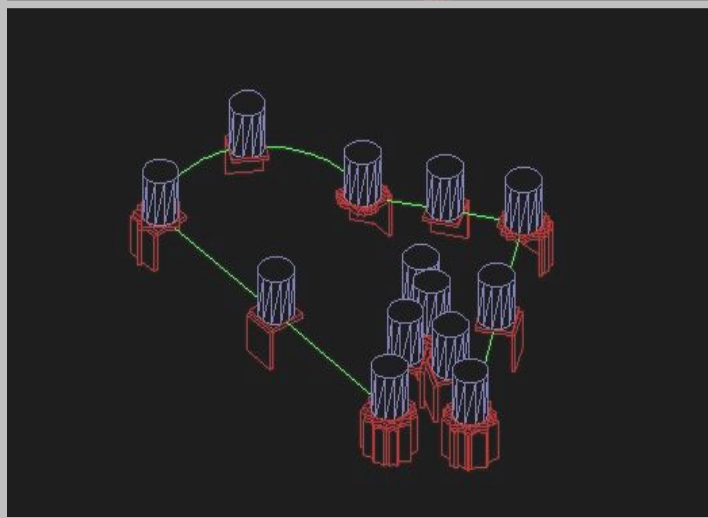
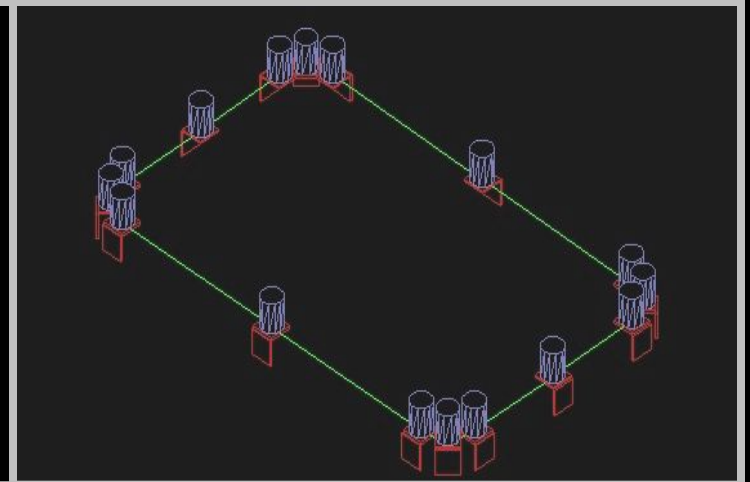
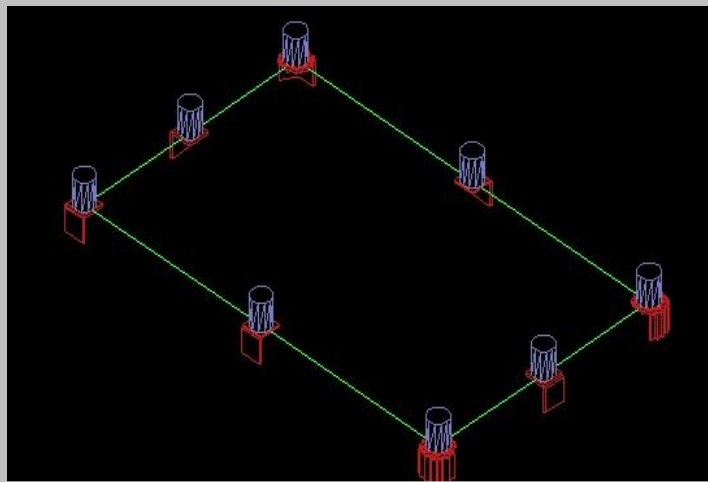


Trowel path planning and nozzle control around concave corners

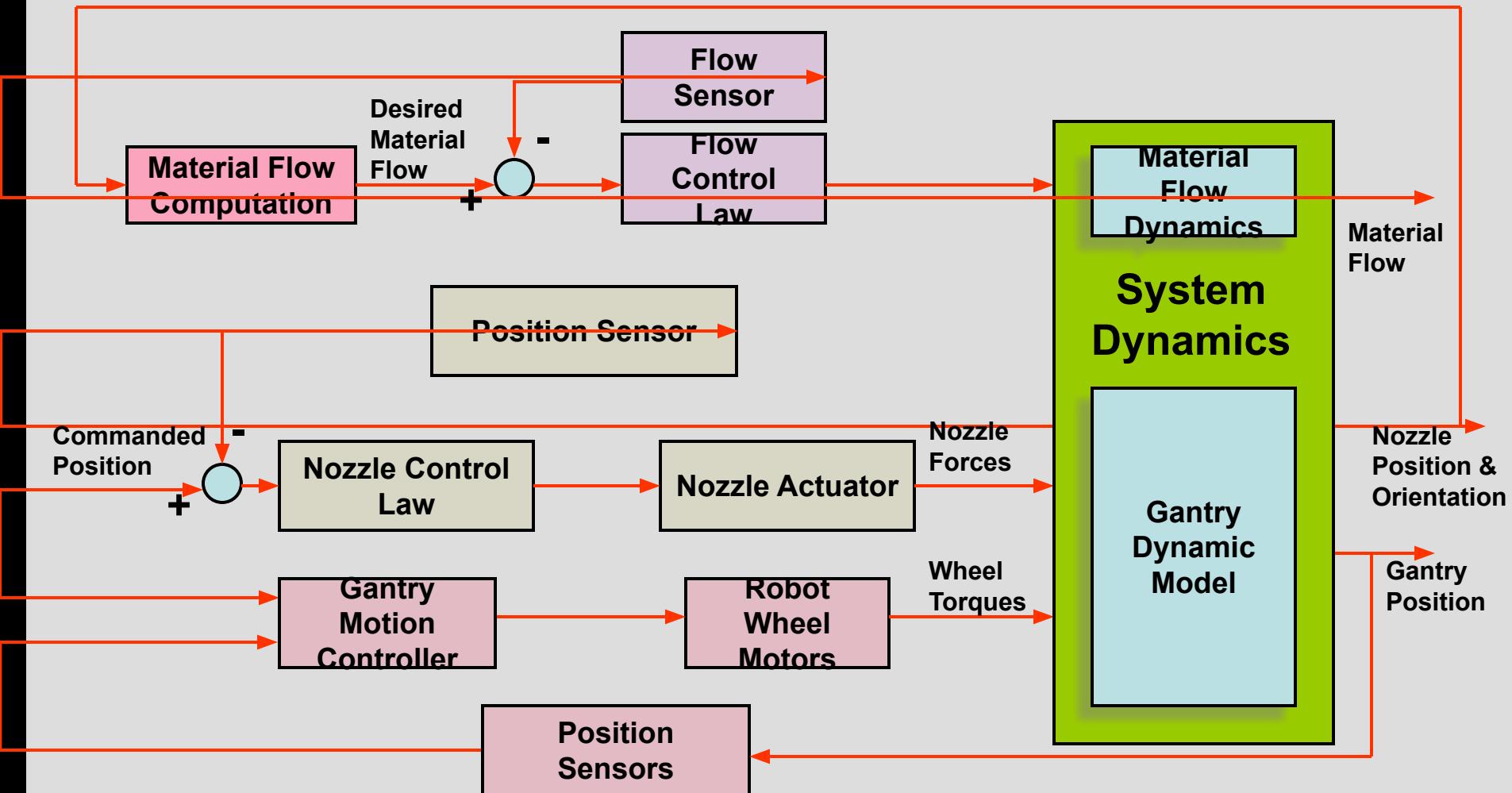




Nozzle path planning

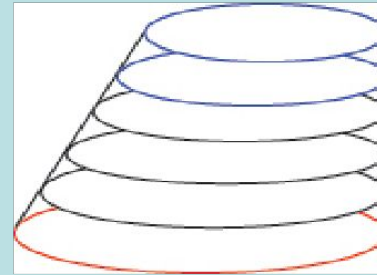
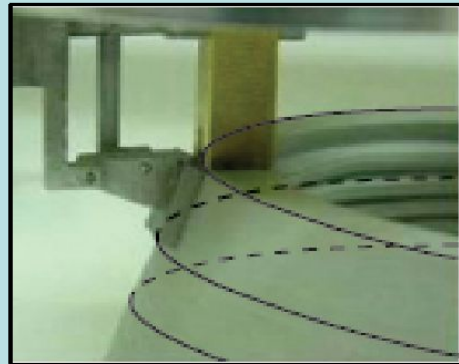


Dynamic Control





Visual inspection Contour Crafting



CAD Model

Visual Sensing
Single/Multiple Cameras

**Texture
Analysis**

3D Reconstruction

**Registration with
CAD model**

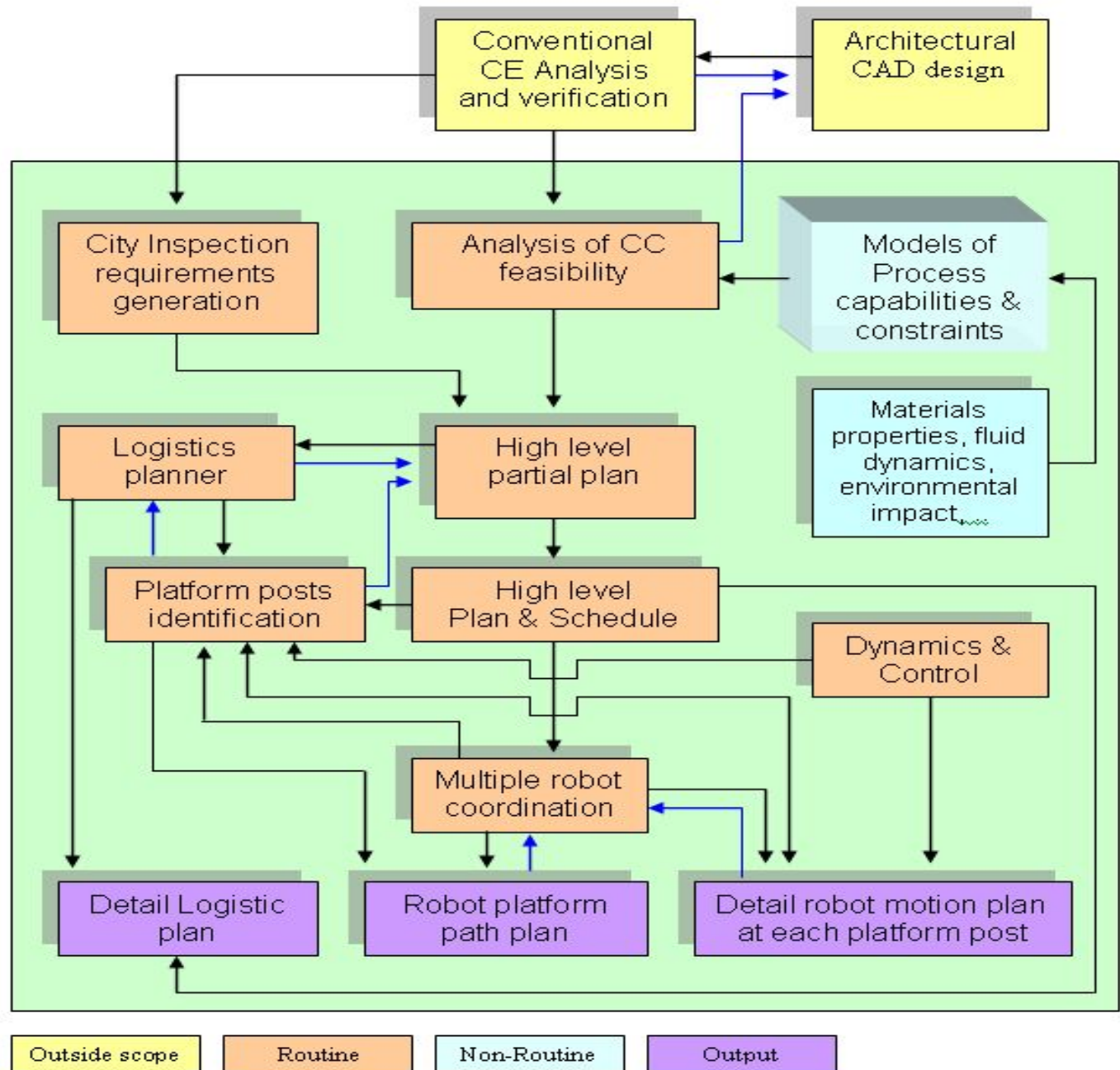
Quality Control

Feedback to CC process Control

CC Process Summarization (Log)



The Integrated IT System



Interrelationships among the three research thrusts

