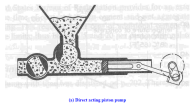
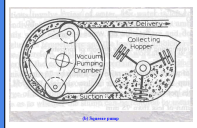
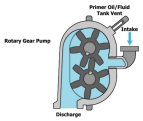
	Possible ways									
Concrete Extrusion	Gravity pulls concrete through, valve controls flow	Syringe is filled with concrete then compressed	Motorized auger pushes concrete through tube	Concrete is manually pushed through by hand	Piston pump pushes concrete through https://en.wikipedia.org/wiki/High-density_solids_pump#Types_of_piston_pumps 	Concrete and water are mixed at the nozzle reducing pumping needs	Peristaltic pump (squeeze pump) pushes concrete through 	Extrude a dry powder, then spray the power with water https://newatlas.com/berkeley-researchers-pioneer-powder-based-concrete-3d-printing/36515/	Use cold water when mixing concrete to slow the curing process, heat the nozzle to hasten the curing time after extrusion	Rotary gear pump pushes concrete through 
Keeping Concrete at right moisture level	Put concrete into a sealed reservoir	Constantly mix concrete and add water at defined rate	Extrude a dry powder than spray with water, eliminating the need for moisture level maintenance	Have students check concrete at a time interval and add water by hand if needed	Put a wet "curing blanket" over that top of the concrete in the reservoir to prevent it from curing too quickly 	Mix concrete at the nozzle so curing before extrusion isn't a concern	Chill the concrete reservoir to slow the rate of evaporation, heat the nozzle to reducing curing time once extruded	Use a mucus membrane like a snail to prevent water from evaporating from the concrete 	Use a programmed moisture monitor to alert the students if more water needs to be added to the concrete mixture 	Print all the concrete quickly enough where there isn't time a significant amount of moisture to evaporate
Concrete Delivery	Attach reservoir directly to extruder	Manually fill extruder	Gravity fed 	Pump fed	Auger fed	Dosing pump	Open shoot to basket on extruder	Using a motorized plunger forcing the concrete into the extruder	Magnets	Using air pressure in the reservoir to push the concrete through the system
Concrete Mixing	In Auger	User mixed in the reservoir	In a purpose made concrete mixer (off the shelf)	User mixed in a bucket	Using an auger in the reservoir	Using a drill attached concrete mixer	In a concrete truck 	A kitchen stand mixer 	In a separate team design mixing apparatus	Using compressed air to agitate water and dry concrete together
Receive instructions for print	Recieve G-code from SD card	Retrieve model/gcode from USB flash drive 	Uploaded model via direct USB connection	Transmit file via wifi	Transmit files via bluetooth 	Have raspi do download the file from internet	Have a pc attached to create models	Punch card processing 	Have micro-controller download it from internet	User input G-code 
Motion in XYZ Axis	Robotic arms	Sliding mechanism	Tension mechanism	Pulley system	User controller (like a hose)	Magnetic system 	Moving bed instead of moving extruder, using a strong motion platform	Using a motor, moving extruder along a threaded rod	Rollers/wheels to facilitate movement	
				Concept 1:	Rationale: I think that parts of this concept, like mixing concrete and water at the nozzle and using programmed moisture monitor, warrant further investigation. I think mixing concrete and water at the nozzle would solve a lot of potential issues with reservoir design.					
				Concept 2:	Rationale: This design is close to what the previous concRIT team did. The rationale behind this concept is that a lot of the components are already purchased and in the cubicle, so we might as well experiment with them and see if they are optimal or if they can be improved upon.					