









Idea 1: Please refer to full morph chart on last page

Function	Idea	Image
Secure Parts	Magnet	
Interpret User Interaction	Phone App	
Wash Parts	Scrubbing System	
Sanitize Parts	Steam	
Dry Parts	Hot Air	
Notify User	Through Phone Notification	

Idea 2: Please refer to full morph chart on last page

Function	Idea	Image
Secure Parts	Clamp	
Interpret User Interaction	Twist Timer	
Wash Parts	Spin and Wash	
Sanitize Parts	Boiling Water	
Dry Parts	Air Dry with Fan	
Notify User	Notification on display	

Rationale:

1. I believe that using a magnet could be a productive choice for securing the pump parts during the cleaning process because it would allow for them to not get thrown around the system, but if needed a magnet could help move the pump parts through the scrubbing system. I chose the user interaction and notification to both be used through an app, that way all the information for using the automatic cleaner will be in one convenient app. I thought a scrubbing system used to wash the pump was a productive choice because we might be able to save on water usage if water doesn't need to be constantly flushing through as a way to clean. I chose to use the steam sterilizing because it has proven to be an effective way to sterilize something without the use of chemicals. In addition, I chose to dry the pump parts with hot air because the system will already be hot from the steam sterilize cycle so it will take less energy to reheat the system in order to dry the parts.
2. I believe using a clamp would be a productive choice for securing the pump parts because it would allow the parts to be locked in place without needing to alter the parts in any way. A twist timer would also be productive because it is a one step process and easy for the user to navigate. I chose to have the system wash in a spin and wash cycle that way the water is circulated throughout the system cleaning every component. I also thought that if this cleaning cycle was done with boiling water then the system could save time by combining the washing and sterilizing step. A productive choice for drying would be to use a fan to circulate air in the system. This could save time when compared to just letting the pump components air dry without the fan. In order to notify the user that the pump parts are ready for use, I thought a productive choice would be to have a notification pop up on the system, that way the user can just look to the system to see if the parts are ready.

