Idea one is basic, it will consist of a robot with a tank drive in order to maximize traction within the conditions it will be operating in. It will be equipped with lights, in which illuminates everything around it, allowing for the best vision for the multiple cameras on board. There will be four cameras on a beam or post, on the robot, each placed 90 degrees from each other to achieve a 360-degree field of view. The robot will be equipped with an arm that will be used to remove any obstructions in its path or to investigate any discrepancies that may be concerning. All of this will be controlled either through computer or a controller connected to the computer since the robot will be tethered to a computer.

Idea two is a little more advanced, it will consist of similar elements and components from idea one, but it will contain sensors that will be used for assessment of the environment. One such sensor is ultrasound. The idea behind ultrasound is to check the integrity of walls, to find any hollow areas that may be prone to caving in. This in return can prevent any future damage and allows for repair immediately. Another component that will be used is laser mapping and light sensors. These in pair, would allow for the robot to map out the environment in detail. The goal of these two components is to locate any cracks or deformations in the walls. This again would be controlled via computer or controller, given that the controller has enough buttons and switches to control the extra sensors.

Idea three is entirely advanced, at least for the computer science side. This idea involves the use of a Virtual Reality headset along with a motion tracked controller. The idea is to have the cameras be put onto a gimbal which will allow for head tracking. For example, while the user is wearing the headset, the user can move their head and look around which then would translate into moving the cameras on the gimbal. This would make assessment and observation more efficient for anyone assessing the environment because rather than trying to move the whole robot using controls, they can use a headset that independently moves the camera component only. With the motion tracked controller, the user will be able to control the movement of the robot using the analog sticks and buttons on the said controller, but the advanced portion is controlling the arm onboard the robot. The arm will be put on a component of the robot that can turn 360 degrees on the vertical axis. Instead of using analogs to control the arm, the user can instead use the motion tracked controller. The arm would mirror the motion of the user’s arm allowing for easier and more accurate control.