BIX: Ideate

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BIX

Pollution is found everywhere in local and populated places. The first idea that would help in reducing pollution would be a drone. It would help remove trash that is left in hard to reach places, such as creeks, parks, etc. (See Appendix A.1). The second suggestion that would help in reducing city pollution is a big robot. This idea would help solve the pollution problem by picking up trash that was left on the streets of cities or in places or shopping centers. (see Appendix B.1). The third option that would resolve the city pollution problem is a Roomba based design robot that would help to clean up the urban areas that are filthy and grimy (See Appendix C.1). The fourth and final proposal that would answer the pollution problem would be a robot would be a mix of all three suggestions, but incorporated all ideas into one (see Appendix D.1). It would be serviced to more populated areas.

Alternatives Proposals - The Pros and Cons

Its functionality would be able to lift trash from the ground and be dropped off to the nearest dumpster. The pros of drones includes a minimalized design that is programmed to collect trash from hard to reach areas. Not only that, it has programmed instructions where it transports trash midair to the nearest dumpster (see Appendix A.2). The cons of having drones is that they are unsafe and have a high chance of malfunctioning midair, leading to potential injuries (see Appendix A.3). The configuration of the big robot would help service the cities by suctioning trash, filtering out different trash components (glass, plastic, fabric) and carrying it until it gets full. The pros of a big robot is that it could filter out trash and it would be able to have a higher capacity for the amount of trash it can hold (see appendix B.2). The cons of a big robot shows the difficulty in the production and maintenance cost; it might be too high (see Appendix B.3). The Roomba based design would help cities by sucking the grime and dirt off the street making it look cleaner. The pros of the roomba would be that it is the cheapest and it is maintainable (see Appendix C.2). The cons of this would be that it has a small trash container and the battery life is not as big (see Appendix C.3). For the capability of the carrier bot, it would have a mixture of every idea in all the previous suggestions. Sized down to a more compact design, it would roam the sidewalks and suction trash up, also filtering it through different compartments. The pros of it would be that there would be an abundant amount of carrier bot and it would be the 2nd cheapest alternative (see Appendix D.2). The cons of it would be that it has a small trash can and it would have a small battery (see Appendix D.3).

The Proposal That Is Right Fit For The Job

The proposal that would be the right fit for this project would be the carrier bot. Although there were some cons, the pros outweigh them. This is because every design had their unique features, but putting them all together would make the best out of all worlds. For example, BIX was meant as a project that was meant to be mass produced to help serve the community in being compact and having the capacity to carry large amounts of trash. On top of that, it is easy to maintain and transport the robot because of its compact and small nature.

Appendix A

Figure A.1

BIX Project Idea #1 - Drones

Small drones that flies and has a hook that picks up trash and moves to a marked bin

- Can have a swarm of small robots that can clear large areas.
- Can be used to pick up trash in harder to reach areas.
- Easier to clean up as you would only need to clean from one bin.

Figure A.2

BIX Project Idea #1 - Drones Pros

Pros

- Cheaper
- minimalized
- easy to transport

Figure A.3

BIX Project Idea #1 - Drones Cons

Cons

- Easy to break,
- cannot pick large objects up
- drop trash on people
- crash into walls/people
- battery life

Appendix B

Figure B.1

BIX Project Idea #2 - Big Robot

Big robot on the ground that has its own bin that will be collected.

- Big robot uses an arm mechanism to grab larger pieces of trash off the floor.
- Big robot that suctions litter off the floor and separates each trash item into different compartments of robot
- Big robot has recording devices, audio and video, attached inside it
- Can be used as a bin for everyone to throw their trash into instead of littering.

Can be in the way of people

Figure B.2

BIX Project Idea #2 - Big Robot Pros and Cons

Pros of Robot

- Can pick up larger objects resistant to damage
- can filter through more trash
- have more space for trash

Figure B.3

BIX Project Idea #2 - Big Robot Cons

Cons of Robot

- Production cost,
- Maintenance cost
- Can be an obstruction
- difficult to transport

Appendix C

Figure C.1

BIX Project Idea #3 - R.Bix

“Roomba” like machine

- Has to be suitable outdoors (Can't suck up everything off the floor like rocks)
- Useful in more urban areas
- Can be used as a trash bin for people to throw trash in
- Has sensors that recognize people
- Can be in the way of people

Figure C.2

BIX Project Idea #3 - R.Bix Pros

Pros

- The cheapest option out of the three
- Maintainable
- Routine clean ups

Figure C.3

BIX Project Idea #3 - R.Bix Con

Cons

- Low storage
- Small battery
- Fixed cleaning location
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Appendix D

Figure D.1

BIX Project Idea #4 - C.Bix (Carrier Bot)

- Useful for outdoor place like on a college campuses or city
- Can be used as a trash can for people to throw their trash
- Has an camera to detect people in its way
- Has a bionic arm to pick up trash
- Has a chip to track its location
- Has a face with programmable eyes to intimidate people to not litter

Figure D.2

BIX Project Idea #4 - C.Bix (Carrier Bot) Pros

Pros

- Small robot that carries trash
- Abundant amount of small robot
- 2nd cheapest alternative

Figure D.3

BIX Project Idea #4 - C.Bix (Carrier Bot) Cons

Cons

- Small trash can
- Battery life
- Cannot pick up large trash