Wildfire Protection Sprinkler System

Problem And Solution

- Problem: many wildfires are spreading fast and are burning many acres of land way too fast for people to respond.
- Solution: We design a sprinkler system to stop or slow down wildfires before they can get too dangerous.

Background

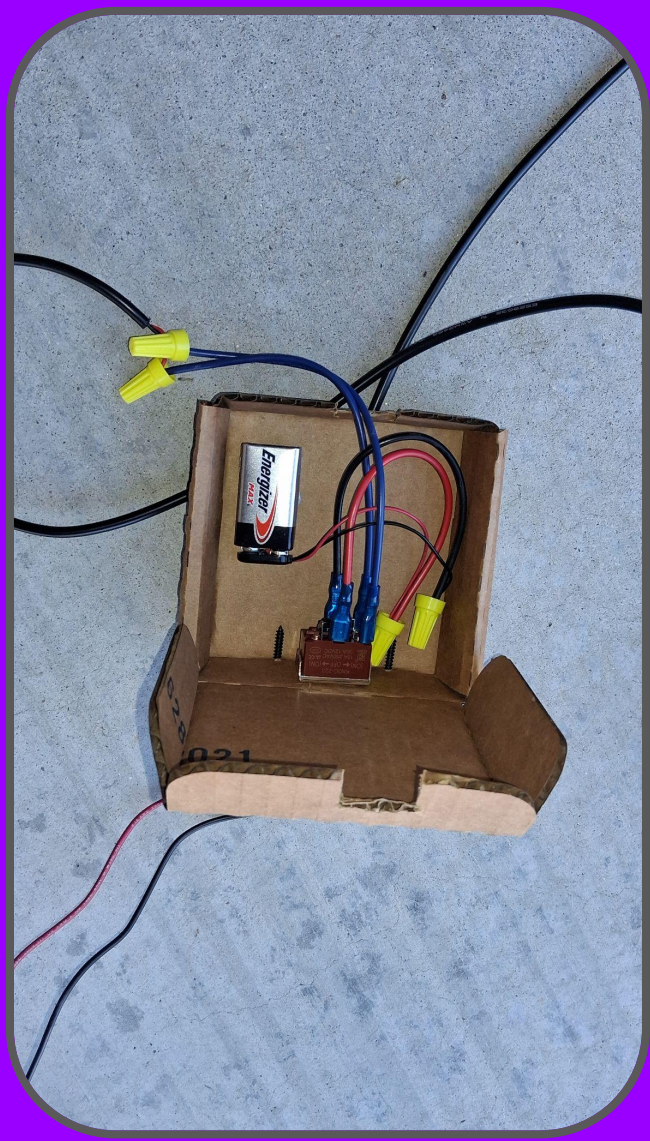
Wildfires are horrible and they burn many acres around the world. There are a number of large wildfires spreading throughout the world right now. According to The California Wildfire.Gov, there are a total of three massive wildfires currently happening. There is also a total of 2,779 acres burnt this year from wildfires. The reason we chose this project is because wildfires are deadly and have been polluting the air and destroying many ecosystems and houses. Firefighters treat wildfires extremely harshly by doing everything they can to put them out. Wildfires can start in the middle of nowhere because of lightning strikes and campfire accidents.

Materials

- RB2 swing pipe
- ½ x ¼ gal coupling
- ¼ xclose gal nipple
- ½ x ¾ mail thread poly adapter
- RB ½ swing pipe coupling
- ADG riser 16/30 w/ADG pat nozzle
- ½ MNPT x ½ FNPT swing pipe fit
- ½ FPT coupling grey
- RB ½ swing pipe coupling x ½ MPT
- HDX 1 gal sprayer
- 1 gallon pump straw

Materials

- PTFE thread tape
- Small cardboard box
- 12 volt battery
- 8 Nut caps
- 4 Push in wires 6 in
- Battery converter
- Momentary contact polarity reversing switch
- Spool of wire (red and black rubber wire)
- water vault



Procedures for sprinkler

1. Wrap the tube tape around any spiral connectors.
2. Connect silver 1/4 spiral to the 1 gallon straw by screwing it on.
3. Connect the silver ½ by ¼ silver by screwing it on the 1/4 sided.
4. Connect the black ¼ spiral/push in spiral to the end of the ½ by ¼ spiral by screwing it on.
5. Then put swing pipe to the end of the push in spiral that you just connected.
6. Then push in the grey push in/spiral to the end of the swing pipe.
7. Put in the grey ½ spiral, that you just put into swing, into the valve.
8. Put in the last black threaded pieces to the other side.
9. Put the grey ½ pvc pipe into the end of the black spiral.
10. Connect the L black pieces (threaded side) in hole.
11. Next put in the 360 nose piece to L shaped connector.

Procedures for controller

1. Strip all the wires until the metal part is out of the rubber casing.
2. Cut a small square opening in the top of the rectangle box.
3. Insert momentary contact polarity reversing switch/switch on the hole you made on the box.
4. Put the switch in the hole leaving the lever sticking out.
5. Put in the two blue wires in the 2 and 3 slot in the switch and put the red wire in the 4 switch and the black switch into the 1 slot.
6. Glue the battery inside the box.
7. Take the red wire, and the red wire in the switch, and tie both metal parts around the metal party of the wire by tying it.
9. Screw the nut cap around the wires.
10. Take the black wire on the switch and the new black wire on the battery and tie them together on the metal parts of each. Put the nut cap around the wires.
11. Take the remaining two blue wires and connect them to one side of spool of wire and connect them the same way you have on steps ten and nine.
12. Take the end of the spool of wire and connect it to the water valve wire the same way you did in step nine and ten

Data

Trial 1	**water did not come out all the way and there were way too many leaks. It would not be able to put out a small fire**	**Changes** We sealed the leaks and pumped the water more. This change worked effectively
Trial 2	**It worked and sprayed a lot cleaner with no leaks. We were able to spray from 50 ft away. It would be able to put out a small fire**	**Changes** We created a remote that helped us spray without getting wet. The remote worked perfectly.

Abstract

Brief procedure:1.Buy the materials needed that were mentioned in earlier slides.2.connect the pump to the sprinkler. 3. pump the pressure into the water pump. 4. Create the remote and attach it to a 360 and flip the switch down to turn it on and flip the switch up to turn it off.

Discoveries made: We discovered that the pump can store more water if the flow is undisturbed and all the leaks are extremely sealed because it will keep the pressure longer.

Errors made: There were leaks in the wire connecting to the pump at first which made the pressure quickly release from the water pump and if you pumped the water you would get sprayed from the water because we didn’t have the remote.
This project will be useful in the real world because it will be able to stop wildfire damage which is a big problem in today's world.

What we would change if we did it again: We would change how far it could spray by getting a bigger sprinkler.

Bibliography

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