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Reptile Misting System

Problem:

Certain reptiles require certain humidity levels to thrive. Crested Geckos (the primary beneficiary of this system) need humidity levels above 50%, and the humidity should follow a predictable pattern through the course of the day. Morning humidity levels should begin at ~70%, fall to ~50% through the course of the day, then rise to ~90% at night.

Managing humidity levels can be a daunting task for new reptile keepers, since many pet owners do not have the time to constantly monitor their pet's humidity levels. Additionally, changes in temperature can affect average humidity levels, forcing the keeper to adjust the amount that they are spraying the enclosure. Additionally, the pet owner must spray the enclosure twice a day to maintain healthy humidity levels. This can "tie down" the owner, forcing preventing them from leaving the pet alone for any longer than a day or two.

Idea:

Our idea is to build an automated reptile misting system to carefully control the level of humidity within an open reptile tank. This will allow reptiles to thrive in a maintained environment suited to their needs without requiring a person to manually do the misting themselves. This is most ideal for people who have pets that require specific humidity levels, those who often forget about the small, menial tasks required by owning a pet, and if a reptile owner needs to leave the reptile for at least a day.

System Features / Objective:

- Maintain a healthy, consistent humidity schedule throughout each day.
- Mist the tank appropriately to maintain the level of humidity.
- Detect humidity levels accurately.
- Send daily emails to the user summarizing the humidity levels over the course of each day (optional)
- Notify user about low water levels in the pump's supply tank (optional)

Expected Materials (1 of each unless otherwise specified):

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| • Raspberry PI 3 | • Water container |
| • Water pump | • Misting tubing/nozzles |
| • Humidity sensor | • Spray nozzle |
| • Relay | • Buzzer (optional) |
| • 1 red LED (optional) | • Short power cord |