Automated Plant Watering System

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Abstract- If you are going away for a while and need something to water your houseplants, this box will automatically deliver an adjustable volume of water to a max of four plants everyday, or once every "x" day. A microcontroller handles the time tracking and AC switching with the help of a relay. The relay powers a fountain pump, which functions as the water delivery system.

Introduction- The Arduino will keep track of time and day of the month. When the alarm gets triggered, the Arduino will power a relay. This relay will complete an AC circuit for a water pump. The pump will deliver water to the plants.

Design and Implementation- Depending on the Relay board you buy and safety precautions your AC wiring might look different, which is the reason I have not shown any as this in my circuit diagram.

To summarize: AC power comes into the Relay, and when the Relay closes, that AV voltage is passed to the outlet, powering the pump. Now the outlets can be independently wired further. One is always on and the other switchable via relay.

This setup uses two relays to switch the AC on/off. In addition, it is actually switching both the N and L lines in separate relays, instead of passing the Neutral wire through the two outlet and only switching the L (hot) line.

Weekly watering logic- A simple time keeping program that also tracks the day. Some basic push counters are involved that allow you to set the Hour and Minute locally for both the time and the alarm time. The day tracking starts at day one and will count upto whatever day you provide depending on the month that is being tracked.

This code has the ability to:

1. manually override the pump
2. control duration of the when pump is active
3. control volume of water delivered
4. control how many times a week plants are watered

IF Day of the Month *Mod* Water Every X Day = 0, Then water plant!

Take the days of the month, and divide them by X (Water on "X" day). If the remainder is zero then activate the relay [which is connected to the pump]. The included chart shows the modulo=0 for all possible days of the month (1-31) and the divisor (1-7).

Conclusion- Putting plants into an enclosure will help in organizing and for the connections as well as the pipelines connected to the pump. In addition, we need to give them artificial sunlight, which can be accomplished by connection a light bulb to one of the relays. It is advised to pick the right bulbs that gives your plants the proper UV light it needs.