1. Intro
   1. Hello everyone, this is your host ……., welcome to episode one of ……. series. This is *the* video for the *ultimate* irrigation controller built with Arduino. For those who want a *Smart* and affordable irrigation controller or want to know more about Arduino whether you’re experienced or a novice this is for you. So, let’s get started.
2. Video scene
   1. Host, series and episode
3. DIY retic kit description
   1. I don’t know about you, but I like to think I’m pretty good at gardening even though I’ve probably killed a few hundred plants. Whether I’m out, on a holiday or even at home, I forget to water my plants when it’s hot or forget to turn it off when it’s raining. I come home to a shrivelled plant or one that’s swimming with a huge water bill.
   2. Until I thought about a way to solve this and came up with this [present product]. This is a smart irrigation controller, which is based on the open source Arduino technology.
   3. This kit is made by……
   4. Now you may be thinking, how can this help me? It looks just like my irrigation controller I have already.
   5. This is different, if you want to be able to control your irrigation, save your plants and money this will save you the headaches.
   6. This is the DIY kit version…….
   7. The controller can detect weather conditions and automatically switch off the irrigation. If it’s going to rain the irrigation will switch itself off, if it’s hotter/colder and the evaporation is lower/higher the controller will adjust the watering frequencies. This will also measure the light and soil moisture to keep your plants alive and save you water and money.
   8. What’s even better about this product other than being affordable, is its connectivity, what I mean by this is it’s able to retrieve weather data by connecting to your network. You can also adjust the controller yourself manually or through a mobile device. With the application you will be able to adjust the irrigation controller from anywhere.
   9. To get the product set up you need to have an internet connection with WIFI
   10. You will also need the following other than plants and irrigation….
       1. 2
   11. From this you have to…….. refer to manual or next instalment in series
4. [opening box] Whats in the box, maybe after show the complete unit to provide a better picture of what the product is and how it’s all connected.
   1. While going through description, brief comment of placement of sensors, main unit and remote sensor. Again if short on time refer to manual or next videos etc.
   2. The Arduino Mega [talk about specifications such as connectivity]
      1. The Arduino board in the kit is IDUINO Mega 2560, this is a microcontroller based on the Arduino open source technologies. The board contains 70 input/output pins, 16 of them being analogue and 54 are digital connections. The processor on the board is rated at 16mhz with 256kb flash memory with 8kb of memory. The board is 101mm long, 53mm wide and weighs in at 37grams.
   3. Display, power and enclosure
      1. The LCD display is a 32-character display with a backlight. The display also has six push buttons that can be used as a selection menu.
   4. Remote sensor comms
      1. Brief description of specs etc
   5. Various sensors and what they do
      1. Humidity
         1. The humidity sensor works by measuring resistance between two electrodes separated by an absorbent substrate. This works by increasing conductivity when the substrate absorbs vapour in humid conditions, effectively lowering resistance in contrast to low humidity and higher resistance between the electrodes.
      2. Temperature sensor (Thermistor)
         1. Thermistors are a negative Is made up of semi conductive materials and can be NTC (Negative Temperature coefficient) or a PTC (Positive Temperature Coefficient). This means that resistance is greater or lesser depending on the temperature and the type of thermistor is used.
      3. Sunlight
         1. A LDR (Light Dependant Resistor) is a variable resistor with voltage levels increasing as the amount of light increases. When the light decreases, so does voltage as the amount of resistance increases.
      4. Soil moisture
         1. Soil moisture sensors can be connected to digital or analogue output (dependant on sensor), which is read from two probes that measure electrical conductivity to calculate the volume of water in soil. This works by passing electrical current and analysing the time it takes to pass, the greater resistance means drier soil and less resistance indicates a volume of water.
      5. Rain sensor
         1. This sensor measures resistance and when output voltages are lower in rain conditions and higher in dry conditons.
      6. Connectivity to the Arduino.
         1. The wifi module, XC3802 WiFi Mini ESP8266 Main Board, commonly used for IoT (internet of things) allows for easy control of the Arduino with mobile devices and access to data. The wifi module is programmable with on board memory.
         2. Time and date specifications will be sent to the Arduino via NTP.
5. Software of the unit
   1. Blynk app, link in the description
   2. Firmware, link in the description
   3. Code to run the sensors and internet connection, link in the description
   4. Potentially cloud app? link in the description
6. You can purchase this kit through [mention a few retailers, as they may be a sponsor] and extra parts or replacements.
   1. Warranty for the kit and guarantees as required by law
   2. Product support including manual materials in the box and online
7. Why the user should by the product?
   1. Ease of use including set up
   2. Product support
      1. Phone contact
      2. Online chat/ Email
      3. Forums
      4. Video tutorials etc
   3. Save money, time and plants etc
      1. Justify the automation of the system and ease of use
   4. Functionality of the product and being able to adjust through cloud, otherwise fully automatic.
8. Youtube wrap up and mention next video in the series
   * 1. <https://maker.pro/arduino/projects/arduino-soil-moisture-sensor>
     2. <https://www.instructables.com/id/Wemos-ESP8266-Getting-Started-Guide-Wemos-101/>
     3. <https://create.arduino.cc/projecthub/MisterBotBreak/how-to-use-a-rain-sensor-bcecd9>

<https://www.kitronik.co.uk/blog/how-an-ldr-light-dependent-resistor-works/>

<http://www.circuitbasics.com/how-to-set-up-the-dht11-humidity-sensor-on-an-arduino/>

<http://www.circuitbasics.com/arduino-thermistor-temperature-sensor-tutorial/>