

Question 1:**Proposal:**

For this scenario John could use a device such as an Arduino with soil moisture sensors and LEDs for each pot, it could easily be configured to monitor the soil moisture and activate the required LED(s), possibly using a slow flash for requiring moisture and a fast flash or solid on for the soil being to moist.

Sense:

Reading the Soil Moisture Level for each pot

Think:

Determine whether the soil moisture is outside of set parameters for each pot and determine which LEDs to Activate

Act:

Activating specific LEDs when required

Question 2:**Proposal:**

For this scenario Jane, Megan and Kim could each build a GPS data logger from an Arduino Nano which is a lot smaller than the UNO and easily powered by a portable mobile "On The Go Charger" equipped with a GPS shield and Data Logging Shield, this would allow them to log their rides and compare the data at a later date.

Sense:

Timestamp (Date and Time), GPS Data (Distance, Elevation, Speed, etc.)

Think:**Act:**

Generate and append data to .CSV file on SD Card

Question 3:

Arduino, Soil Moisture Sensors and LEDs for each Pot

Question 4:

Arduino, GPS Shield, Data Logging Shield (With RTC)

Question 5:

- a) Invalid or Incorrect sensor data
- b) Data validation e.g. correct format, comparing averages of the last few sensor readings and disregard anything that could be considered “dirty”

Question 6:

- a) Invalid or Incorrect sensor data
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Question 7:**Proposed Extension:**

The possibility of extension for this solution could be to add a LCD panel to the Arduino unit, John could have a more detailed readout of the plants moisture level, in addition a Data Logging Shield could provide John with detailed logs of the soil moisture over a given period of time.

Question 8:**Proposed Extension:**

Jane, Megan and Kim could use a App similar to MyTracks to record this data on their mobile phones, most apps of this nature can export the data for comparison and would make an easier solution to strapping an Arduino Nano to their bikes or rolling around in their bags.