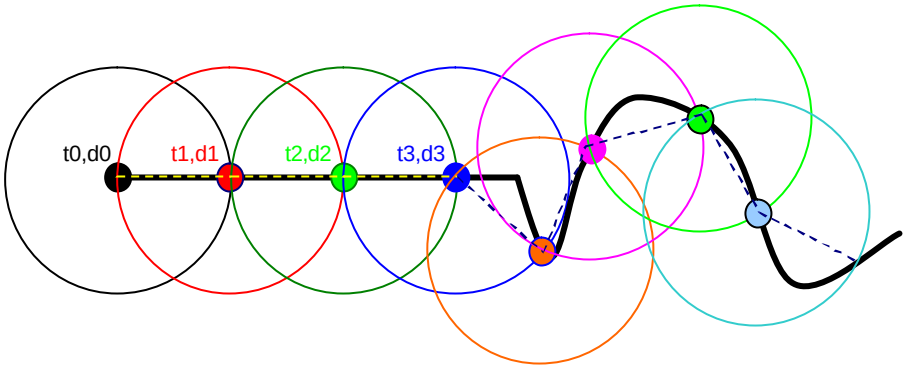
# Application Note: Using Geo Fencing with the M110

## 1. Using Geo Fencing Condition Distance Only, Recycle On




| | | |
|---|---|---|
| T=t0,d0; | Report 1 | [Delta Distance Increase = Exact Geo Distance] |
| T=t1,d1; | Report 2 | [Delta Distance Increase = Exact Geo Distance] |
| T=t2,d2; | Report 3 | [Delta Distance Increase = Exact Geo Distance] |
| T=t3,d3; | Report 4 | [Delta Distance Increase = Exact Geo Distance] |
| T=t3,d3; | Report 5 | [Delta Distance Increase > Exact Geo Distance] |
| T=t3,d3; | Report 4 | [Delta Distance Increase > Exact Geo Distance] |
| T=t3,d3; | Report 4 | [Delta Distance Increase > Exact Geo Distance] |
| T=t3,d3; | Report 4 | [Delta Distance Increase > Exact Geo Distance] |

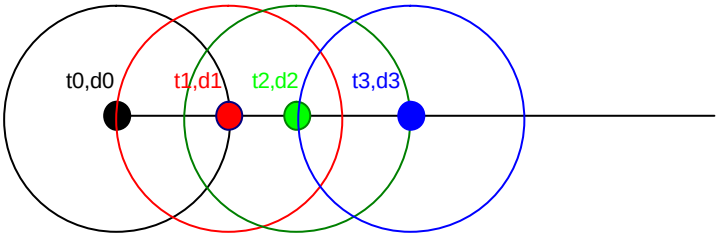
Etc.

t0, t1, t2, t3, etc. are speed dependent

d0, d1, d2, d3 etc. are equal distances, conditionally set by “Distance”

Note: since the geo fencing principle is used the actual travelled distance can deviate from the geo-fenced calculated distance (report triggers). Especially in curved roads the deviation can be rather large.

## 2. Using Geo Fencing Conditions Distance and Time, Recycle On




| | |
|---|---|
| T=t0,d0; | Report 1 |
| T=t1,d1; | Report 2 |
| T=t2,d2; | Report 3 |
| T=t3,d3; | Report 4 |

Etc.

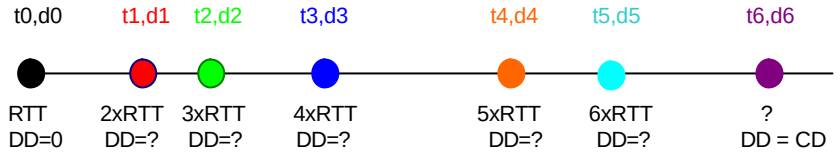
t0, d0: initial reference (or remotely set by #DO RESET=GEO)

t1, d1: Report due to distance condition (recycle on == reset conditions)

t2, d2: Report due to time condition (recycle on == reset conditions)

t3, d3: Report due to distance condition (recycle on == reset conditions)

**Using Geo Fencing Condition with Distance=CD, Recycle Off, Report Rate = RRT seconds**




A report on every coloured dot, with:

t0 = RRT, d0 = 0
t1 = 2*RRT, d1 = distance measured (GPS[0],GPS[1])
t2 = 3*RRT, d2 = distance measured (GPS[0],GPS[2])
t3 = 4*RRT, d3 = distance measured (GPS[0],GPS[3])
t4 = 5*RRT, d4 = distance measured (GPS[0],GPS[4])
t5 = 6*RRT, d5 = distance measured (GPS[0],GPS[5])
t6 = ?, d6 = distance measured (GPS[0],GPS[6]),
➔ Extra Report since d6 = CD
GPS Rate += 5 seconds (suppose GPS Fix rate is set to 5 seconds)
➔ Extra Report since d6 = CD, and Recycle was off
GPS Rate += 5 seconds
➔ Extra Report since d6 = CD, and Recycle was off
GPS Rate += 5 seconds
➔ Extra Report since d6 = CD, and Recycle was off
GPS Rate += 5 seconds
➔ Extra Report since d6 = CD, and Recycle was off
etc.

With Recycle On, at t6 the condition would be renewed.

## 3. Notes

- In order to generate precise distance calculations set the GPS Fix rate to 1 or 2 seconds
- Since Geo Fencing calculation is based on the availability of GPS reception a report based on Geo Fencing Time *alone* can result in skipping regular reports while the GPS receiver is unable to set a valid GPS fix with valid time/date info.
- Normally Report Rate is set to 0 for pure geo fencing applications.
- When receiving reports is required under all conditions, it is recommended to set the standard Report Rate to a value that is slightly higher than the Geo Fencing Time. For example: Geo Fencing Time = 300 sec, then set Report Time = 330 seconds. In case of GPS failure, the report rate will be taken from the Report Rate value (==330 seconds). Under normal GPS conditions a report is forwarded with a rate of 300 seconds.