1. What are the different states the device can be in?
Remote Controller device can be in a few possible states. 1. Polling data to detect door opening this happens every 500ms.(VL53L0X1) 2. Run algorithm to detect door opening. 3. Send command to remote device by exception based on step 2 (nRF24L01). 4. Send peroiodic heartbeat to Remote device every second nRF24L01.)
2. How much will your device be in each state?
The goal is for the device to be on for as little time as possible. I need to measure how much each states takes. to know the duration of each task in their periodicity. Making some assumption, we can say: 1. Every 500ms of polling takes 50 ms to get reading in step 1. (VLX53L01) 2. Algorithmm calcuation takes 10 ms (stm32G4) 3. Transmitting a single byte takes (100 ms) 4. Transmitting a single byte every 1000ms takes 10 ms to complete
3. How much current is used in each state?
Current usage by state: 1. VLX53L0x requries abount 6.0 mA during reading. 2. nRF24L01 requires 11.3 mA for data transmission at 0dbm output power. 3. nRF24L01 requries abount 11.3 mA during transmission
4. How long will the device last given a 40mAh battery?
6.281264211

1. What are the different states the device can be in?	per sec	
Polling data	0.1	
Computing	0.02	
Transmitting	0.01	
2. How much will your device be in each state?		
	seconds	proportion of time in each state
Polling Data	30	0.769230769
Computing	6	0.153846154
Transmitting	3	0.076923077
3. How much current is used in each state?		
	current reading	
Polling Data	6	mA
Computing	1	mA
Transmitting	11.3	mA
4. How long will the device last given a 40mAh battery?		
battery size	850	mAh
power used in		
Polling data	4.615384615	mA * proportion time spent in mode
Computing	0.153846154	mA * proportion time spent in mode
Transmitting	0.869230769	mA * proportion time spent in mode
TOTAL	5.638461538	mA Total
	150.7503411	hours of use
	6.281264211	days of use