reasearch on GPS module

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1 What to consider before choosing GPS module

List of needed requirements	
Type of requirement	specific of the requirement for the project
size wristband	max 30 mm x 30 mm
size boat	max 60mm X 60mm
update rate	1-10 Hz
power requirements	3.3/5V - we make a voltage regulator
number of channels	?
time to first start	?
antenna	best if included
accuracy	the more precise the better, budget limitation , at least 3 m horizontal accuracy
microcontroller compatible with	Arduino

2 Considered options and their specifications

1. Spark Fun RTK-SMA
   The SparkFun RTK-SMA GPS module is very precise, up to 0.01m in horizontal accuracy. However, the price is 250 $ which is out of the semster project budget. The module is advancted and can do RTK. However, it is not needed for the prototype of the project. link to the datasheet: `https://cdn.sparkfun.com/assets/f/8/d/6/d/ZED-F9P-02B_DataSheet_UBX-21023276.pdf?_gl=1*150sgcj*_ga*MTAxMTI1MDc`
   `ga_T369JS7J9N*MTY5Njg3NjM0Mi40LjEuMTY5Njg3NjU1OS42MC4wLjA`

2. NEO - 6
   Due to its low price relative to the functionalities it offers and compatibility with arduino, this module is indisputable choice for those who want to learn how GPS works.This module is based on NEO-6M chip from U-blox. It has a Pover Save Mode that makes it suitable for a wristband locator. It is also the smallest chip amnog the others listed in a Table 1 It includes antenna with sensitivity patch of 161dBm.

3. BN-220
   The needed requirements are fullfilled despite the price. Which for 1000 krones budget is too high if the shipping price is added. link to datasheet: `https://files.banggood.com/2016/11/BN-220%20GPS+Antenna%20datasheet.pdf`

3 Comparison

requirement	Spark Fun RTK-SMA	NEO - 6	BN-220
size	X	X	X
update rate	X		X
power	X		X
desired number of channels			72
time to first start (cold/warm)	-148dBm/-157dBm		26s/25s
antenna			
accuracy of min 3 m	X	X	X
compatible with Arduino	X	X	X
budget	not in the budget		about 150 krones but expensive shipping

Table 1: GPS modules comparison