Analyze GPS

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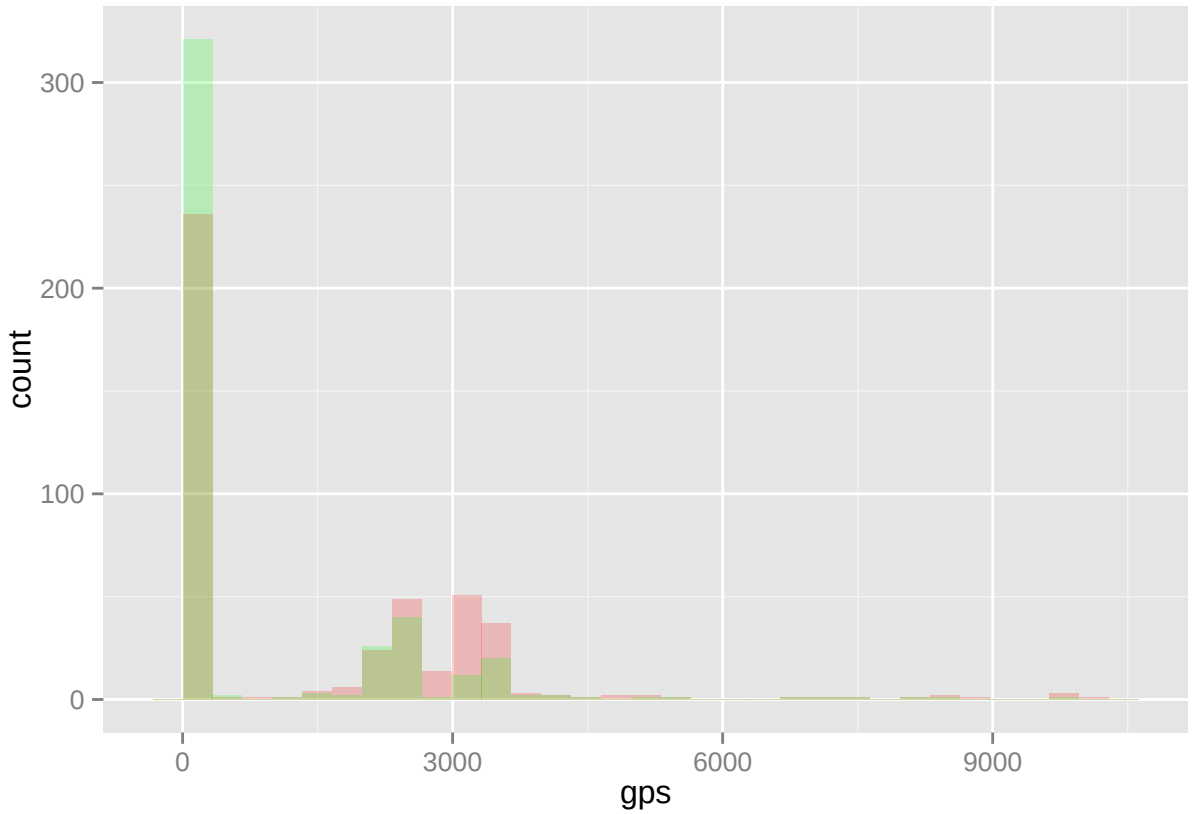
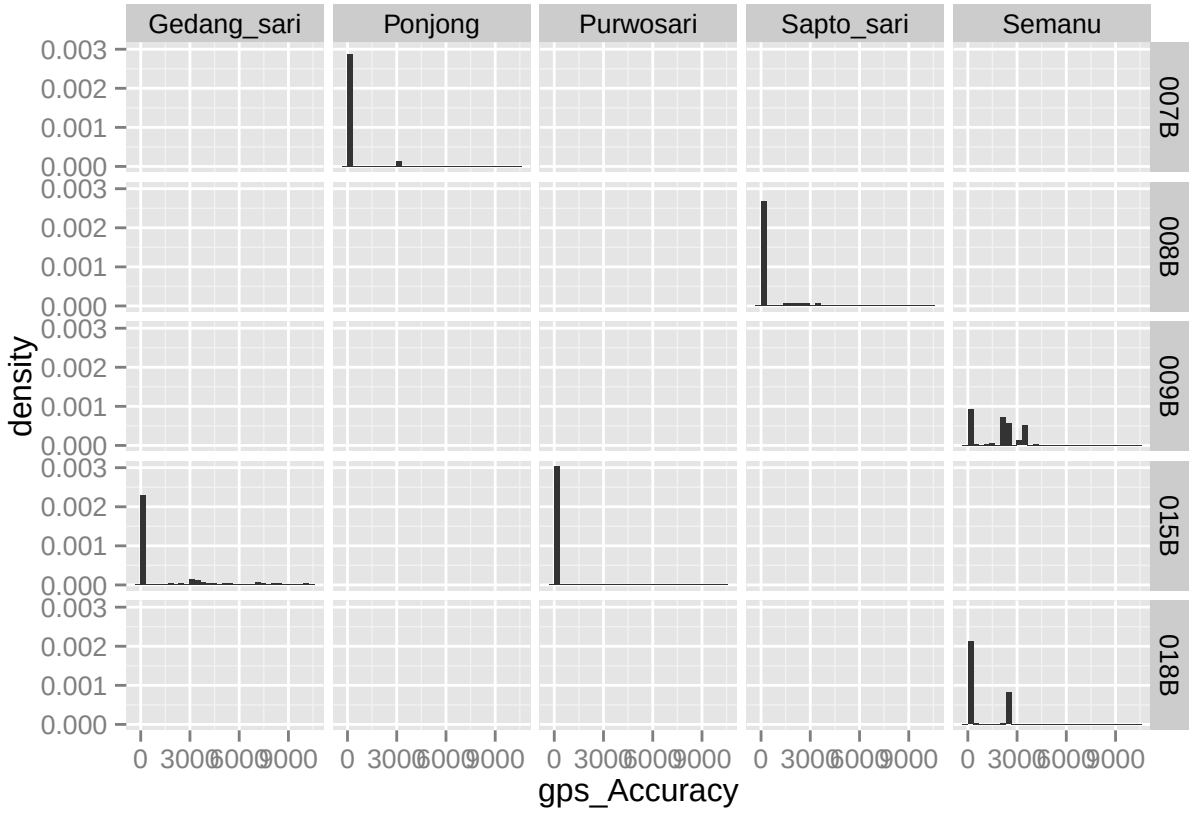
A quick look at some completed questionnaires from the first day of listing showed terrible GPS accuracy on many interviews as the first plot below shows. Many interviews had gps accuracy of more than 1.5 kilometers.

```
source("R/mergeListing.R")
data <- mergeListing(dd = "~/Dropbox/CROP/Indonesia/")

gps1 <- data.frame(gps = data$gps1_Accuracy,
                   measure = rep("measure1",n = nrow(data$gps1_Accuracy)))
gps2 <- data.frame(gps = data$gps2_Accuracy,
                   measure = rep("measure2",n = nrow(data$gps2_Accuracy)))

gps <- rbind(gps1,gps2)


ggplot(gps,aes(x=gps)) +
    geom_histogram(data=subset(gps,measure == 'measure1'),fill = "red", alpha = 0.2) +
    geom_histogram(data=subset(gps,measure == 'measure2'),fill = "green", alpha = 0.2)
```



Thinking the accuracy might vary by sub-district and census block, I created the plots below. It's clear that there's variation across the areas. Specifically, **Semanu - 009B and Gedang_sari - 015B** seem to have the worst accuracy.

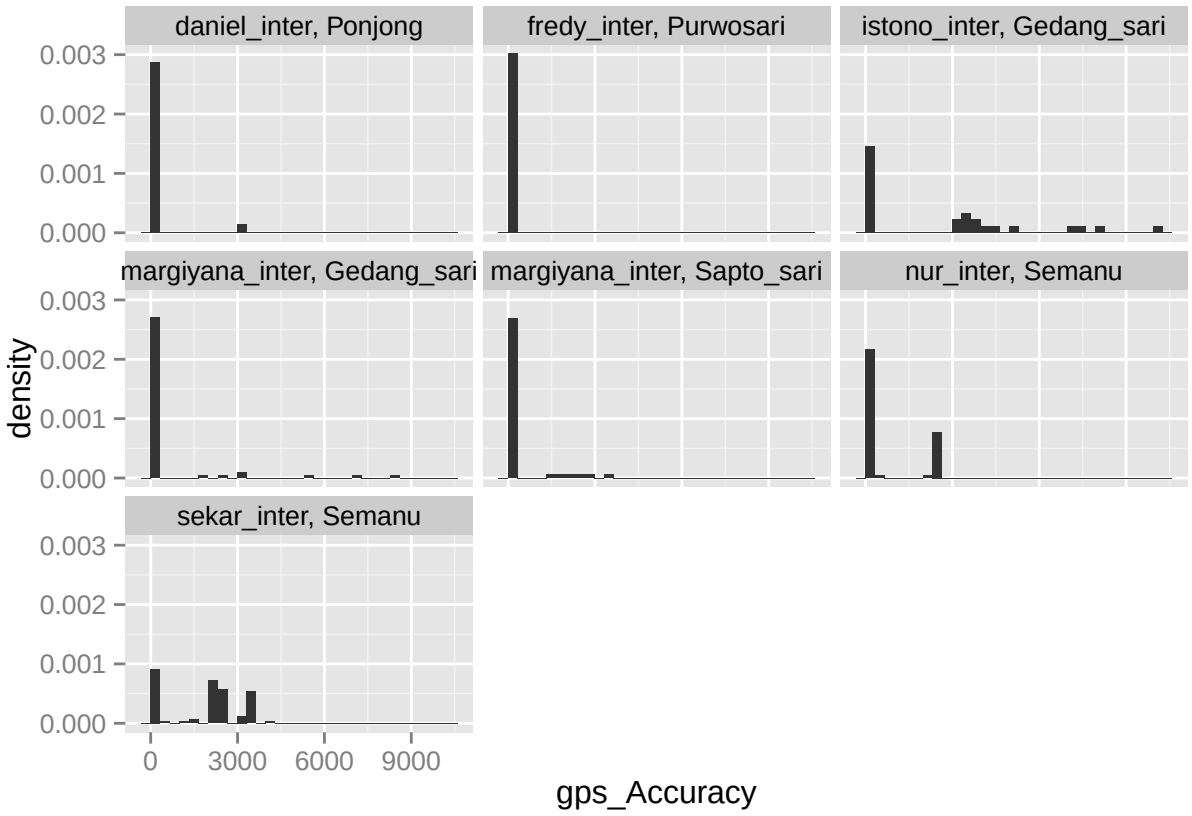
```
source("R/labelFactors.R")
data <- labelFactors(df = data,
                     vars = c("sub_dist_name2","census_block"))

#take most accurate gps reading from each survey
if(data$gps1_Accuracy > data$gps2_Accuracy){
  data$gps_Accuracy <- data$gps2_Accuracy
} else {
  data$gps_Accuracy <- data$gps1_Accuracy
  }

ggplot(data, aes(gps_Accuracy)) +
  geom_histogram(aes(y = ..density..)) +
  facet_grid(censusBlockLabels~subDistrictNames)
```



Now, let's see if it's a specific enumerator or more than one.

From the plot below, it seems **Margiyana in Gedang Sari, Istono also in Gedang Sari, and Sekar in Semanu** have the worst GPS readings. **Please call these enumerators and make sure they're not taking the GPS reading inside the dwelling. Also, we need to make a mental note that GPS coverage isn't very good in Gedang Sari**

```
ggplot(temp, aes(gps_Accuracy)) +
  geom_histogram(aes(y = ..density..)) +
  facet_wrap(Enumerator~subDistrictNames)
```


daniel_inter, Ponjong
fredy_inter, Purwosari
istono_inter, Gedang_sari
margiyana_inter, Gedang_sari
margiyana_inter, Sapto_sari
nur_inter, Semanu
sekar_inter, Semanu
density
0.003
0.002
0.001
0.000
0
3000
6000
9000
gps_Accuracy