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**Sent:** Thur 1/14/2016 5:01:04 PM (UTC)  
**To:** igor.gankin[igor.gankin@samsung.com]  
**Cc:** Elad Cohen[elad@snapaid.com]  
**Subject:** Regarding SnapAid SDK

Hi Igor,

Following our conversation, I thought I might emphasise a few things.

SnapAid technology doesn't improve on the excellent AF, AE, AW the camera has today.

**It only adds a rating for the picture.**

**This rating is key to getting a better picture.**

If at time of shutter press you have a 3/5 picture, then **waiting a bit may give you a better quality 4/5 or even 5/5.**

All you have to do is wait, (50ms, 100 ms, 300ms). Wait for conditions to improve, wait for AF to finish its work, etc.

Here is some data we got from our user base of the test app.

They consist of **6K different users and 25K different pictures**. (Data was created via test app and Google analytics)

**Only 6% had 5/5 quality at the time of shutter press.**

This is significantly different from what you may see in your test, since you are used to hold the camera steady and aim and then take a picture.

This is not how an average user of smartphone take a picture. He takes one, then another one and a third, and hopes out of the 3 he will have "one good one".

Of the remaining 94%, the statistics was as follows:

**1/3 of pictures achieved 5/5 via waiting** the allowed 800ms, with an **average wait of 300ms**. (35% to be exact)

**For the remaining 2/3, half (48%) gained a higher quality** picture than the one the shutter was pressed via waiting for a better picture until a timeout arrived.

The better quality could be after 100ms, but the app waited the full 800ms for a perfect picture, that it didn't get in the end. It saved that picture in the process.

So, SnapAid gave the users a better picture for 2/3 of cases picture was not "perfect" at shutter press, (35% + 2/3\*48%).

Since it is 2/3 of 96%, we can say **SnapAid improves on 64% of pictures**. Not 100%, but significant.

#### SDK control parameters

The SDK gets an input image via OpenGL texture and other parameters like IMU (Gyro, acc) and exposure parameters.

It saves the best picture in memory, and can be configurable on how many you want to save, and what is considered a "good enough" picture.

It also reports its confidence in this rating, and gives not just a total quality, but also quality for things like face exposure.

#### OIS

For devices that has OIS, I do not recommend to remove the OIS for a number of reasons.

Still, SnapAid technology can improve pictures on top of that, since there are more factors of bad image quality than camera shake, and OIS will get a good picture without wait for camera shake scenario. Also, for devices without OIS, SnapAid SDK can create a similar results as OIS and add some, via almost unnoticeable delayed picture taking.

When waiting doesn't help and recommendation for user.

On some cases waiting will not help. For example If the lighting is poor and camera continue to shake.

Still, **letting the user know of the problem helps**. He may not know what to do, or hasn't pay attention.

Another example is face exposure. We have an algorithm you haven't seen yet that can direct the user what to do when the face is not properly exposed.

It shows on the screen "move left" for example, telling the user where to move the camera so the face will be properly lit.

Hope this helps to clarify things.

Regards,  
Ishay