

EG 2401 Engineering Professionalism

Additional Notes III (Professionalism & Ethics Issues --- various other newer technology developments where ethics cannot, and should not, be ignored!!)

AY 2014-15

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Aug/Sep 2014

... engineers [need to] realize how their technical work has far reaching impacts on society. The work of engineers can affect public health and safety and can influence business practices and even politics. ...

Japan's Hayabusa 2 spacecraft heads to a carbon-rich asteroid soon



by Mariella Moon | @mariella_moon | 5hrs ago



On November 30th, Japan's Hayabusa 2 will be leaving Earth aboard a Mitsubishi-made rocket to make its way to an asteroid -- but not to blow it up. The Japanese spacecraft will follow in its [predecessor's footsteps](#) and observe a space rock for science (of course). But unlike the first Hayabusa that explored an asteroid rich in silicate and nickel-iron, this one's headed for one that's made of clay and rocks: materials that could contain organic matter and water. The unmanned vehicle will traverse outer space for more than three years until it finds asteroid "1999 JU3," which it's scheduled to reach by June 2018.

Currently largely unregulated, space is the next frontier in commercialization and competition for resources and wealth...

Automakers promise to limit the data they collect from your car



by Jon Fingas | @jonfingas | 3hrs ago



A modern car is potentially loaded with data: it could be collecting performance stats, where you've been and your internet usage. How do you know that it's not secretly sending that data to advertisers and insurers? You might not have to worry much longer. The Auto Alliance (which includes most major American and German brands) has published a set of [privacy principles](#) that will limit both the info these companies collect from your car and dictate how they handle it. If all goes according to plan, the voluntary rules will kick in with the 2017 model year as well as any services that launch in 2016.

As engineering systems in our every-day life progress with greater intelligence and autonomy (needing more and more data to be stored in centralized servers), wherein is the dividing line on personal privacy & security?? ...

Modular 3D printer lets you add whatever tools you need



by Jon Fingas | @jonfingas | 6hrs ago



One of the biggest problems in 3D printing is anticipating the kind of equipment you'll need; if you suddenly have to print in ceramics, you may have to buy another machine. That won't be an issue if the [Flux 3D printer](#) gets off the ground. The crowdfunded device lets you swap in modules that accomplish any number of tasks; if you need to laser-etch wood or work with pastry, you just switch components. It's not a large printer, but it includes a 3D scanner and lets you replace some parts if they break.



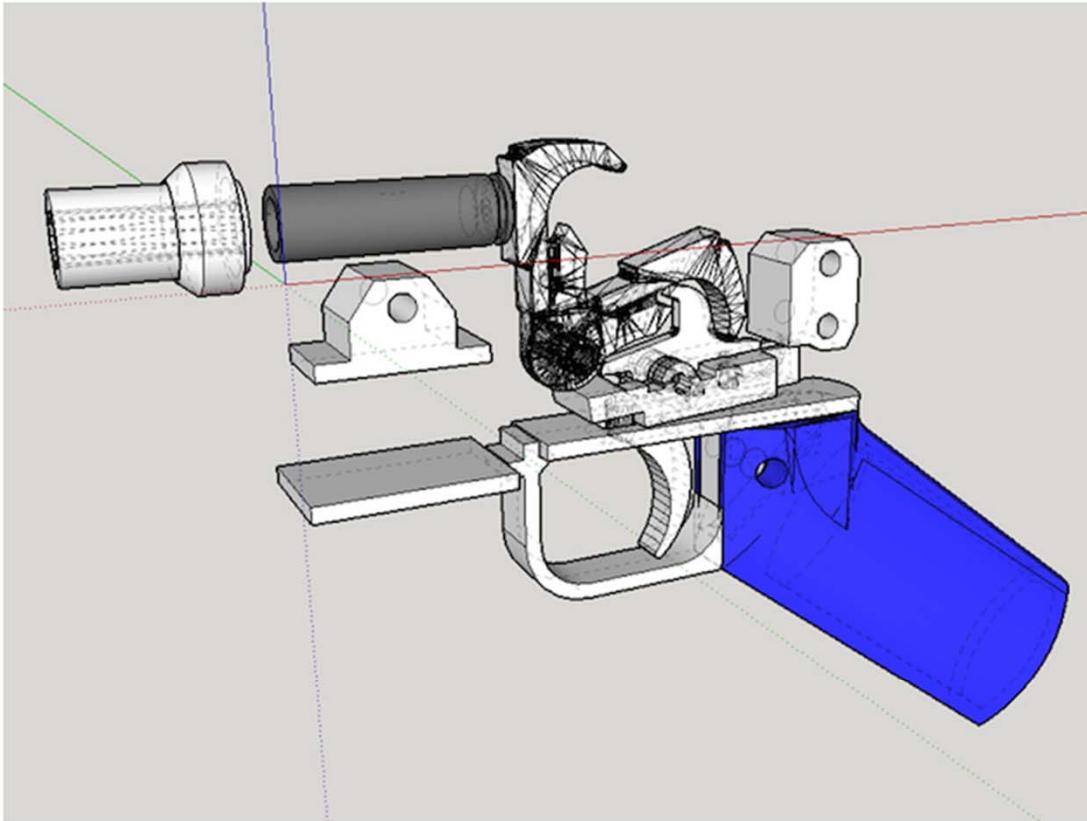
The technology of 3-D printing, already here with us albeit still in its infancy... truly a breakthrough technology for fast-prototyping, specialized parts etc... but with potential for a "darker" side (see next slide)...

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There's now a steel-reinforced bullet for 3D-printed guns



by Edgar Alvarez | @abcdedgar | 5hrs ago



the “darker” side of 3-D printing technology...

Despite all the hype surrounding [3D-printed guns](#) (good and bad), they still haven't truly taken off outside of enthusiasts. A reason for this is, perhaps, the lack of powerful ammunition -- something that's not 3D-printed or, put simply, generally made [out of plastic materials](#). But, as [Wired reports](#), a gentleman from Pennsylvania has already started working on a solution, for those who were looking for one anyway. Michael Crumling, a 25-year-old machinist, [recently designed bullets](#) that use a rather thick, steel shell, strong enough to keep a hold of the blast from inside without spreading any force to the weapon.

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THL1.2 - Why Study Engineering Ethics? [from Lecture 1]



- **Engineering is managing the unknown:** You must test your design as thoroughly as time and resources permit to ensure that it operates safely and as planned.
- **Engineering is managing the unknown:** Also, you must use your creativity to attempt to foresee the possible consequences of your work.

THL1.5 - Summary (I)



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