

# A system that enhances the collaboration between repairers and makers

Repair has become rare in societies with an abundance of cheap goods. However in recent years repair is making a gradual comeback in western culture. Citizen repair initiatives such as Repair Cafés have popped up in cities all over the world. They support people to fix their broken things.

The increasing popularity of the ‘Maker Movement’ and 3D printing has allowed skilled individuals to create, share and produce their own spare parts for repair. While most modern makers also repair things, most repairers are not capable of making things using digital fabrication methods like 3D printing.

To analyse why most repairers can’t use 3D printing and how the 3D printing process can be changed, the context of repairers, makers, 3D printing and reverse engineering was explored. Multiple iterations were created and tested with repairers and makers.

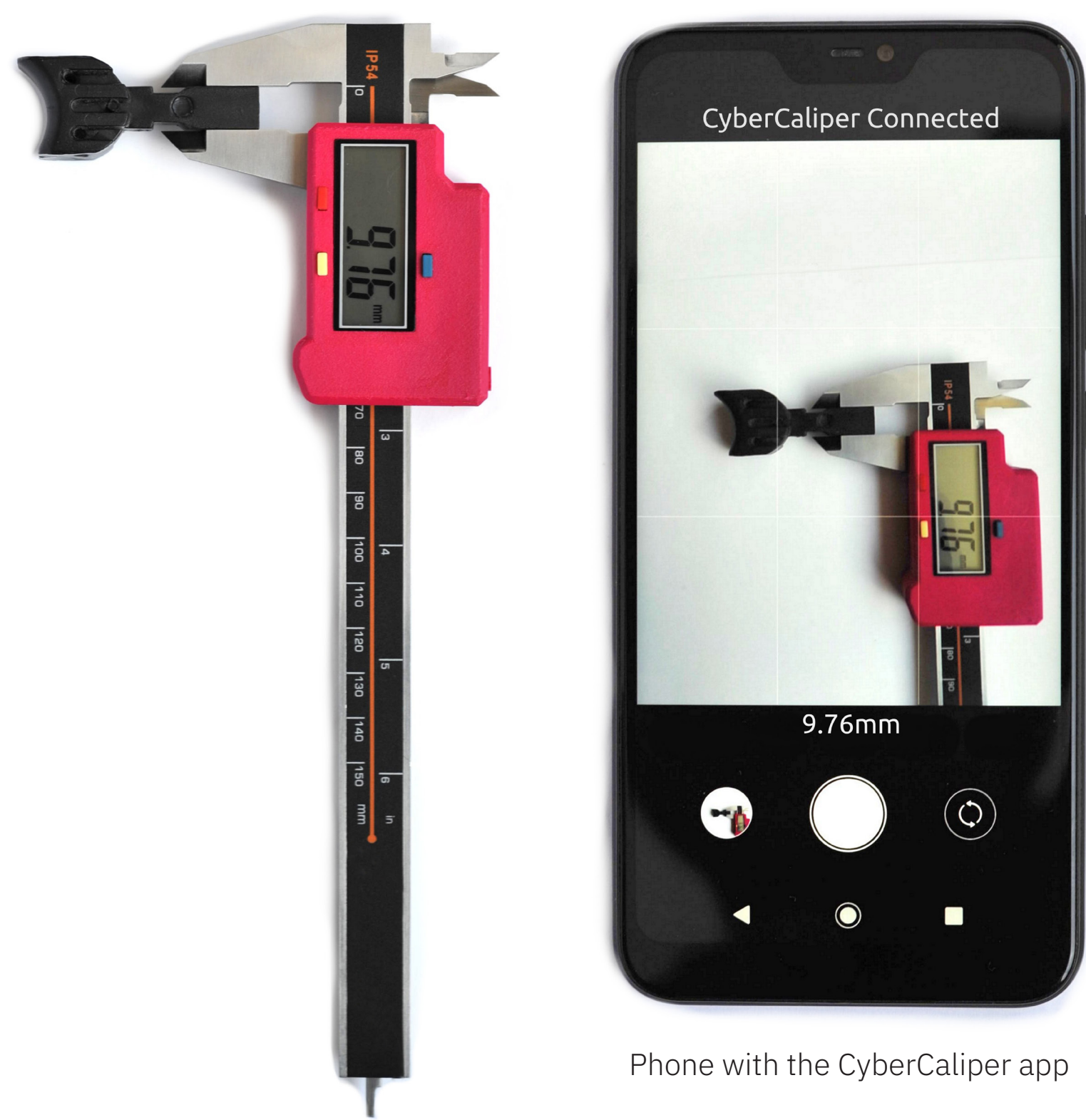
After a number of iterations a final concept was proposed that enables repairers to ‘manually’ 3D scan an object, using a caliper, and digitally share it with makers so that they can support them in replicating the object through CAD modelling and 3D printing.

The final design is a product service system that consists of a toolkit (CyberCaliper) for repairers and an online platform (MakerMarket) through which repairers can collaborate with makers on 3D printing for repair projects. The toolkit contains a CyberCaliper, which is a special caliper that makes it easier for repairers to ‘manually’ 3D scan their desired part and post it on the platform. The platform is designed to become the place to be for requesting 3D printed spare parts online.

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## CyberCaliper

CyberCaliper is a special caliper that is connected via Bluetooth, it enables a repairer to quickly record the dimensions of an object with his phone. These photos can then be shared on the MakerMarket where makers can collaborate with the repairer to create a 3D model and 3D print a new spare part for them.



CyberCaliper

Phone with the CyberCaliper app

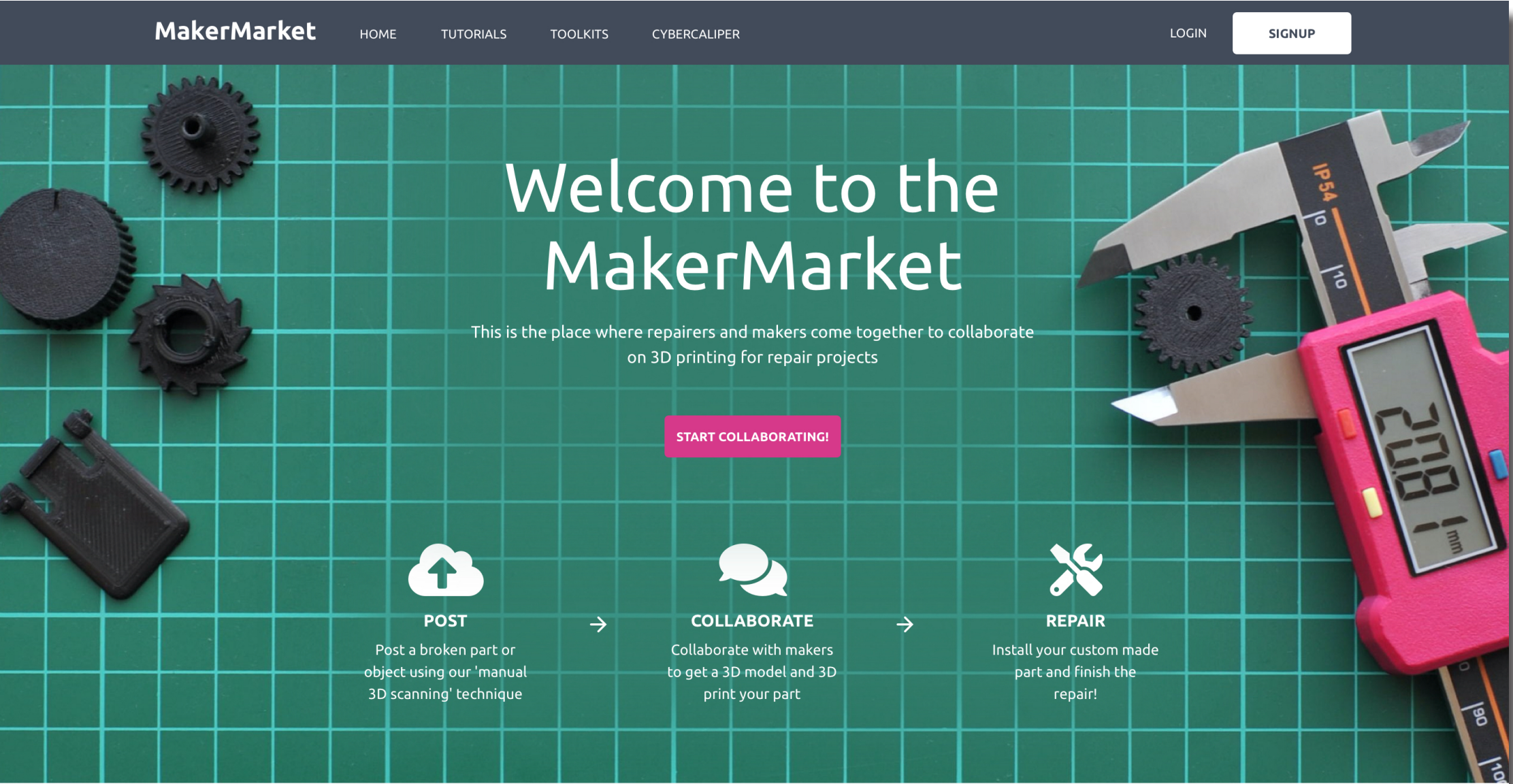


Phone standard

Deburring and finishing tools

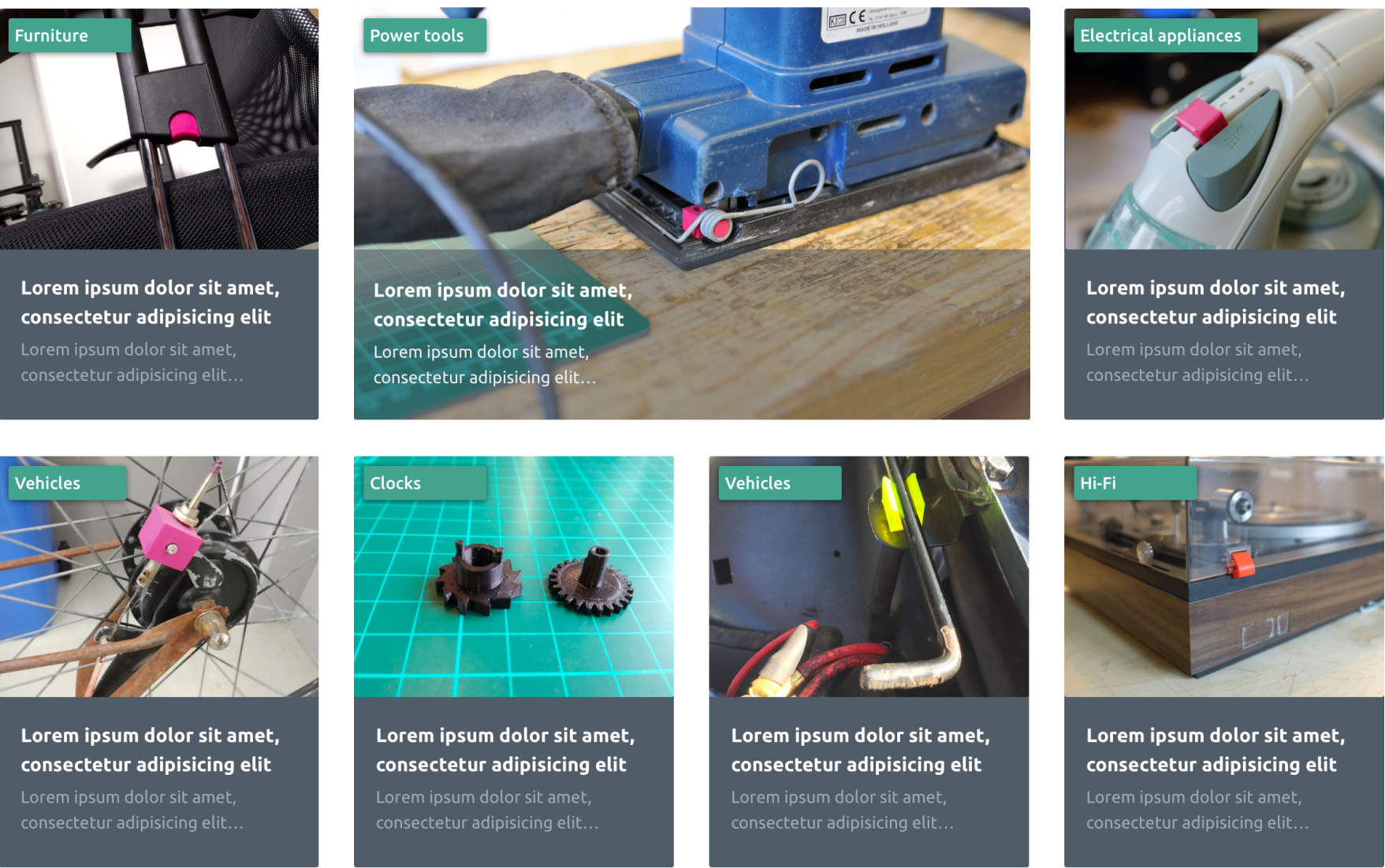
## MakerMarket

The MakerMarket is an online platform where repairers can collaborate with makers on 3D printing parts for repair. The platform allows repairers to upload photos of their parts using the ‘manual’ 3D scanning with a caliper. These photos can be interpreted by a maker to create a 3D model which is needed for 3D printing. The maker is challenged to create a new design while helping the repairer get a spare part that fits.



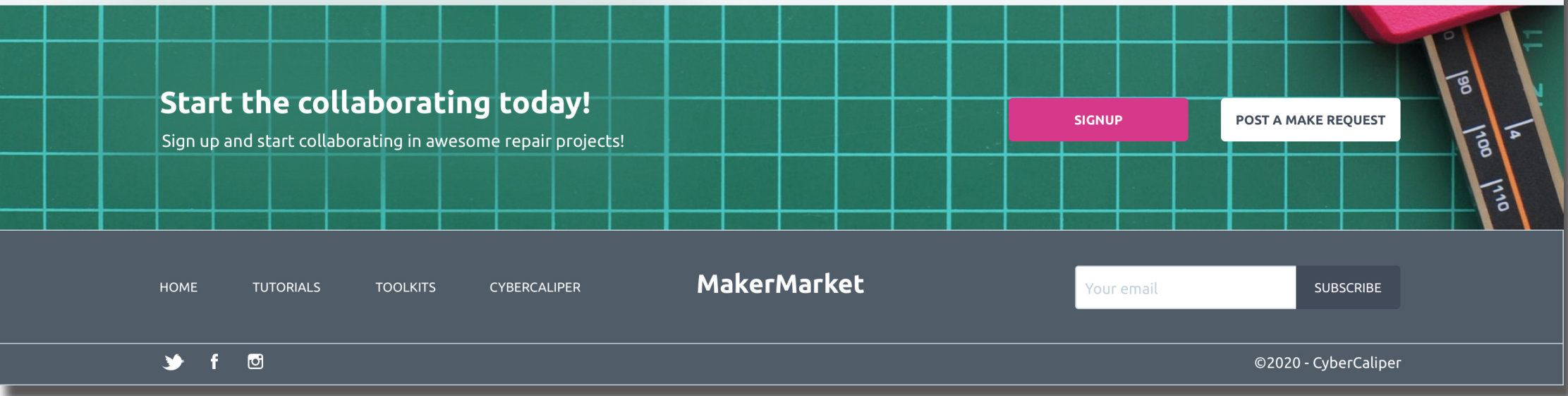
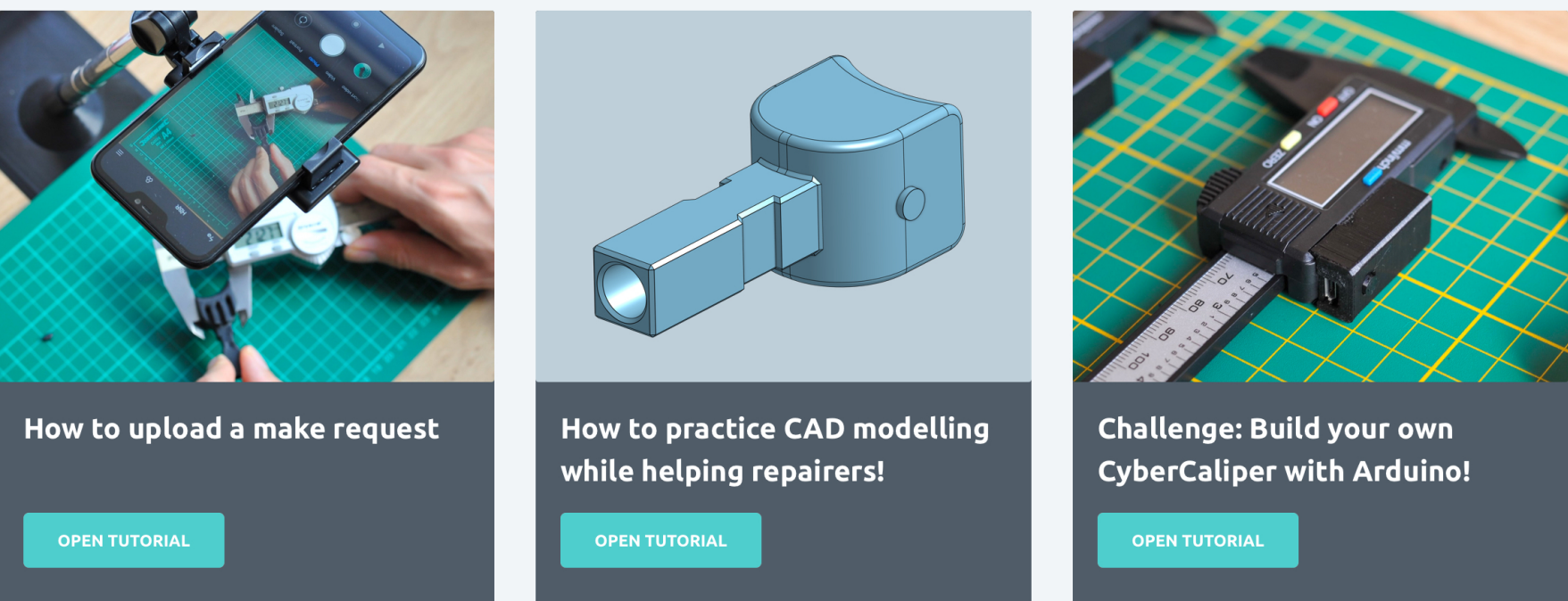
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