

SWIN
BUR
* NE *

SWINBURNE
UNIVERSITY OF
TECHNOLOGY

3D Printable Self-healing Polymers for Automotive Repair Applications

CRICOS provider 00111D

Delivered by : Fareed Tamaddoni
Supervisor: Dr. Mostafa Nikzad

The Problem

- Complete headlight assembly needs to be replaced in many accidents



The Problem

- Lugs come in many different geometries



The Solution

Implementing 3D printing methods for repair purposes has **two** main requirements

3D-Printable
material

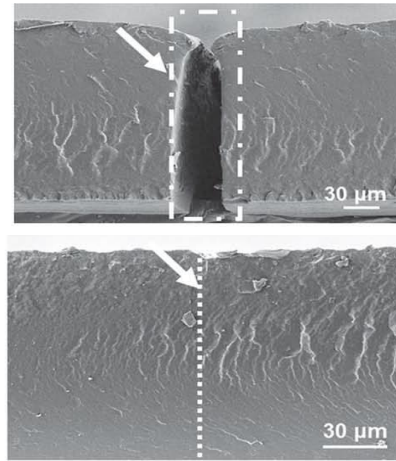
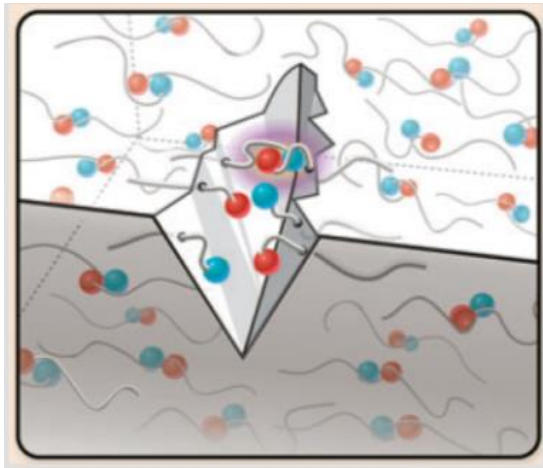


Robotic
control

KNOW
ING

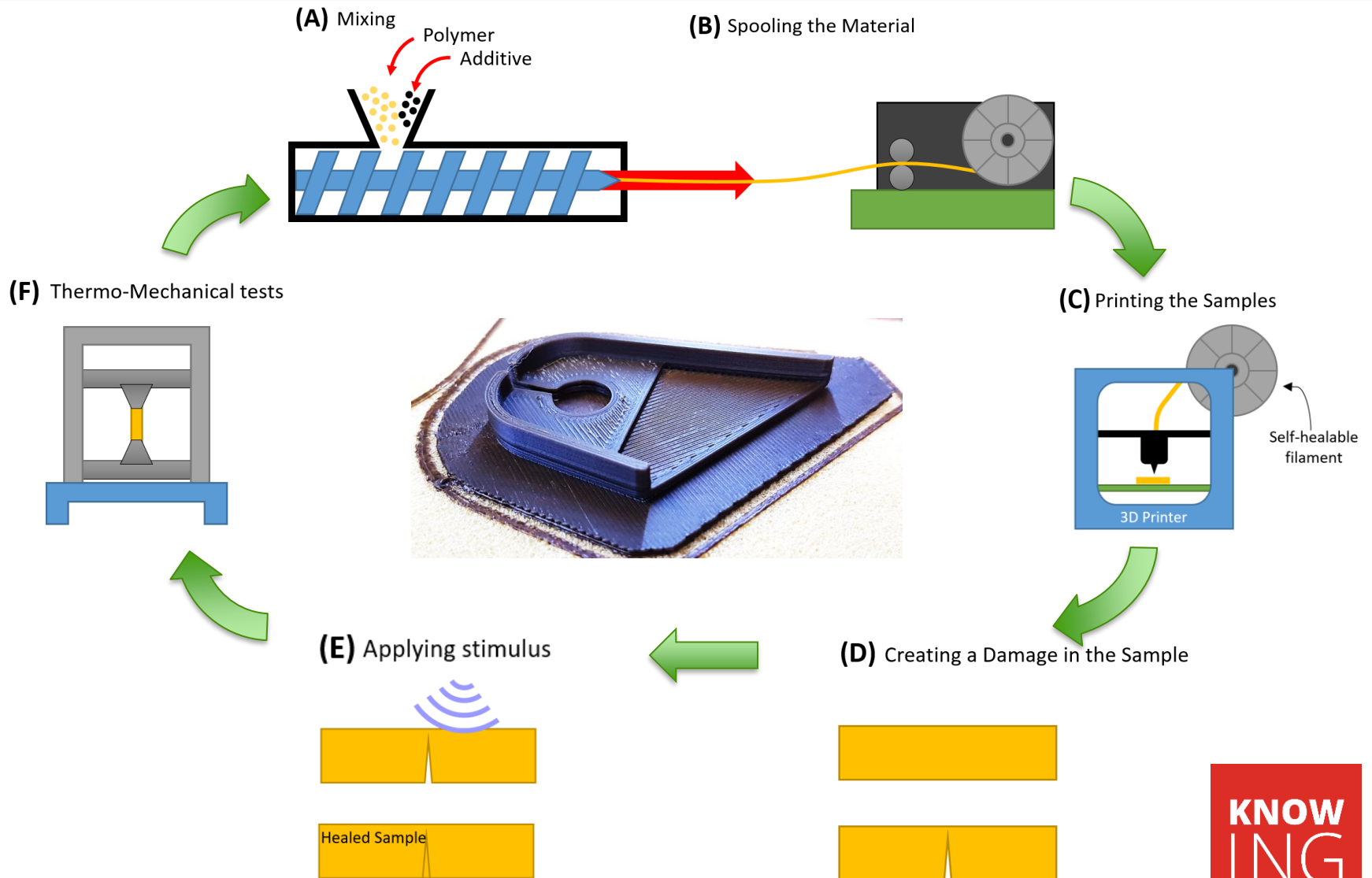
Self-Healing Materials

- Self-healing materials are smart materials that can repair damage intrinsically, which will lead to longer lifetimes.



- The repair process can be entirely automatic (no human intervention) or assisted externally (various stimulus such as UV or heat)

Methodology



Conclusion

- High **Accuracy**
- High **Speed**
- Easy to train
- Ability to repair **Faster** and **Cheaper** if a repaired lug breaks again
- Self-healing thermoplastics potential applications

THANK YOU
ANY QUESTIONS?

**KNOW
ING**
