**CE301 – Abstract – Dan Woolsey**

**Pumpy – Design and Manufacture of a Syringe Pump**

Due to COVID-19, medical equipment and PPE have been in short supply and high demand. For the first time hospitals relied on individuals to 3D print face masks to handle the growing supply concerns they faced. This has the potential to be applied to other forms of medical equipment such as syringe pumps, which provide continuous, hands-free drug delivery and can cost more than £1500 per unit.

In this project we designed, 3D printed and built a medical-use syringe pump and computer interface based on Joshua Pearce’s Open Source Syringe Pump. We programmed both a touchscreen interface for a Raspberry Pi computer and an Android application for remote operation via Bluetooth.

We have demonstrated that medical-use syringe pumps can be built for less than 10% of their market value. This open-source approach to manufacturing equipment can allow hospitals to handle supply issues internally and can help to provide inexpensive medical equipment to poor areas with limited modern technology.