Final project proposal

Cheap Open Source DIY refreshable braille reader

What I aim to build is cheap open-source refreshable braille reader that can be built by anyone anywhere in the world with nearby materials and off the shelf parts (such as cardboard, batteries, wires etc…)

Most electronic braille readers range from £800 to £3000+, which is out of the price range of the majority of blind people. There was a great attempt to make an affordable and accessible refreshable braille display see (http://blitab.com/ approx. cost £300 - 400) however the technology is patented, I have no idea how it works and moreover there has been no meaningful updates in last 6 months (they had problems securing funding)

Why do we need refreshable braille readers? the chicken and the egg problem...

A typical braille book needs to be at least 3 times larger than a conventional book,   
when you read braille you need space to brush your fingers over the braille dots,   
the spacing between dots is required to distinguish letters, numbers and punctuations (there is even braille music notation)

As you can imagine, a normal novel of 300 pages converted into braille would take at least 6 to 10 large volumes and be non-portable (carried in cardboard boxes). Because of the large physical size, braille books are expensive, because they are expensive, less blind people can access braille books as well as less blind people can learn braille so therefore there is less books and higher costs - the chicken and the egg problem, a vicious cycle.

With a refreshable braille display, you can read as many books with just one device which is portable and only needs to be built once.

There have been many attempts at building a refreshable braille reader, most have them have failed to secure funding, (hence why I’m using off the shelf parts and DIY open source) and have all focused on building one cell then scaling up to make one line. I’ve developed a strategy in which a braille line gets divided into three parts.

I developed this strategy from my work in physical computing, I can’t insert diagrams into the text box but I have my diagrams and thought process here: <https://hfark001.blogspot.com/>

I can undertake this project, I have learnt the required skills through my physical computing module, I am now going to build a prototype using Lego in January.