**Overview:**

An overview of what you propose to do in your project. Concentrate on the big picture and outcomes, rather than intricate details. At least two paragraphs is expected.

Nodespider’s outcome for this project is to develop the foundations for a smart parcel mailbox that would one day replace the common home mailbox. Nodespider is taking into consideration key areas for the development of this product and we will need to first undergo research and testing before finalizing this product.

The key areas under consideration include software, hardware, materials, financial and marketing aspects for the development. The software department will look at compatibility with your existing WIFI, IOS and Android systems and also being user friendly on mobile devices. The hardware department will need to look at the use of a micro controller that controls input and outputs. The materials department will look at research into and sourcing out materials that are able to withstand all types of weather conditions and will be suitable for security purposes. The marketing will look at existing competitors and current trends. The financial research will look at areas such generating revenue for this product, the cost of the materials and development that needs to be undertaken.

**Motivation:**

What are your motivations for your project. Why is this project important or interesting? How does it fit in with current IT trends? What would it show to a future employer if you were able to work on this project? At least one paragraph is expected?

According to Forbes (2020), a huge shift has taken place in the last decade, and pushed forward with a global pandemic, where the trend for demand in home automation systems has continually increased to contribute to domestic help in new and innovative ways. The smart home market is set to grow from 55 billion to 174 billion by 2025. This demonstrates a very strong market with a global consumer base just waiting to be tapped into. Following this trend, the smart mailbox system we propose will be a welcome addition.

Overall, the online shopping environment has seen unprecedented growth as the events of 2020 and beyond have had a profound effect on human behavior. Online shopping participation increased significantly in 2020, with around 4 and 5 households in Australia alone having bought an item online in the past year. One of the largest growth areas has been seen in homewares and appliances, which represented over half of all online purchases in Australia over the last financial year (Australia post 2020).



**Figure 1:** *Covid-19 pandemic reshaping e-commerce payments in Australia* by Global data, 2020, Australia: E-commerce Value (A$bn).

Another motivation is to aid in increasing security measures in order to counteract parcel theft which has seen a drastic increase over the last few years, with over seventeen percent of Australian adults said to have experienced parcel theft before on at least one occasion. Many of the thefts committed are said to have been opportunistic, whereby the parcels are usually left in plain sight and unattended for extended periods of time. Having a smart mailbox system with a visible security camera will serve as an effective deterrent and will act as an incentive for many potential clients to invest in this concept (Grubb B 2017).

This project therefore retains importance for all of the reasons listed above, and for a team of young developers just getting into the It field, this project is interesting because it gives us a good insight into a technology that can have a great influence on many households. It allows us to interpret and understand real world data and the influences that data will have on our proposed technology. The project is also teaching us how to plan and develop strategies for challenges that inevitably come along while working in developing a project of this scale in a team setting.

Furthermore, the ability to work on this project would demonstrate to a future employer a capability to identify a consumers changing needs in an increasingly digital environment as well as the ability to identify niche markets that are not currently saturated with competitors. It would also demonstrate the ability to think outside the box and to identify and understand appropriate data sources in order to make more informed decision making processes.

**Landscape:**

What similar systems or products are available? What competitors are there? What points of difference are there about your project compared to what exist now? At least one paragraph is expected?

The development of a smart parcel mailbox system shows a large marketing potential in a currently undersaturated market. The trends favoring this growing market include the pandemic environment which favors the no contact form of parcel delivery and an ever-increasing IOT (internet of things). Overall, there are already some well-built smart parcel mailbox systems on the market, specifically Package Butler and Danby. These products however have already shown some issues for consumers as they have little availability outside of the United States, have shown issues with design features and purchase price.

Package Butler seems to be the best of the bunch when it comes to smart parcel mailbox systems. However, there are some key issues relating to this products availability to consumers locally and globally and overreaching aspects with their specs. While this product may seem to be the dream build, the initial cost of the product was quite high costing $499.00US. This could have caused the substantial drop in pricing to meet a wider local market. Also, this product is only available in the US market thus eliminating the chances of expanding the production line, which opens the door for similar products to capitalize.

Danby has on the other hand taken a more economical approach, by not have as many features as package butler and opting to use plastic for the shell. This has demonstrated some poor reviews of the product on the platform Amazon, as customers have filed complaints regarding to the specs of the product. Using plastic as the primary material of construction, could possibly have an impact on the security and durability of the product. They have however made their product more globally available but this comes with a heavy cost for shipping into Australia of around $1269, which would act as an effective barrier to the Australian market.

Receva is an Australian smart parcel mailbox system having its startup in 2017 backed by Australian post. Information on this product was difficult to locate regarding to the specs and availability for consumers. This product could therefore still be in development or has not yet gained the traction needing to hit the Australian market.

Through observation of our current competitor's engagement in the market, we will be able to take on board some key elements that either are or are not working to adapt a strategy to incorporate these gaps in the market. We believe Australia is one of these gaps that our smart parcel mailbox system could gain some traction with as we develop our prototype. We also need to take into consideration not to overreach or go to cheap as this could affect our reputation or financial status as has been witnessed with Package Butler and Danby’s smart parcel mailbox systems. (How we will get finical backing)

**Some of the main competitors in this area include:**

**Package butler:**

Package Butler is a mailbox-like smart device that receives and protects your mails and packages. Virtual key, barcode scanner, solar panel, 24/7 connectivity to mobile phones (Package Butler 2021).

**Specs:**

* Availability US (United States)
* Cost $249.00 USD (US Dollar)
* Made of zinc-plated steel which is resistant against weather and even vandalism.
* Dimensions/weight: 43” x 17” x 17”/88lbs
* Network: WIFI/Cable
* Retrieval: Physical Key, Virtual Key®(in-app)
* OS compatibilities: iOS /Android
* Maximum package size: 13.78“ x 7.48” x 9.05“
* Camera: HD Motion-sensitive® camera
* Receives mails and packages from all major couriers including UPS, FedEx, and Amazon
* $1.99 monthly subscription, the Package Butler Home app allows users to access real-time notifications when packages arrive and can even open the device remotely
* Provides a non-contact solution to the package delivery process.
* Equipped with a motion-sensitive high-definition camera standing by 24/7
* Bar-Code scanning technology that is trusted and utilized by all major carriers
* The Package Butler app allows users to access real-time notifications when their packages arrive and can even open the device remotely.















**Figure 1:** *Package Butler Home®Locker*, Package Bulter by Package Bulter, 2021, specs of the Package Bulter smart parcel mailbox.

**Danby parcel guard:**

Your package is placed inside the anti-theft drop slot and you’ll receive a notification that your package is secure. Add a code to unlock the bottom door for your delivery driver to place larger packages below (Danby parcel guard, 2021).

**Specs:**

* US, Canada can get into Australia <https://www.desertcart.com.au/products/181639751-danby-parcel-guard-the-smart-mailbox-wi-fi-connected-smart-phone-controlled-stop-parcel-theft-dpg-37-g>
* Cost $399 CAD
* Wi-Fi connected smart technology with motion sensor, camera and alarm
* Android & iOS app compatible
* Electronic lock controlled through the app or keypad access
* Electric power & battery pack
* Anti-theft parcel slot
* Secure weatherproof frame
* Fits parcels up to 15″ x 10″ x 8″
* Can be mounted to the ground or weighted with sand or gravel
* Industrial grade plastic
* 24 month warranty
* SPECIFICATIONS: 120 volts, 19.75″W x 39.5″H x 16″D







**Figure 2:** *Protect your packages and your home* by Danby parcel guard, 2021, specs of the Danby smart parcel mailbox.



**Figure 3:** *Desertcart Shopping Center* by Desertcart, 2021, cost of importing Danby Parcel Guard into Australia.



**Figure 4:** *Danby Parcel Guard* -*The Smart Mailbox - Wi-Fi Connected, Smart Phone Controlled, Stop Parcel Theft – DPG37G* by Amazon, 2021, customer review of the Danby Parcel Guard.

**Receva:**

The Receva is a home mailbox that provides a secure location for your home delivers Ensuring you never miss a delivery again (Receva 2017).

**Specs:**

* A start-up of Australia Post
* Receva runs on an open platform and is designed to work with delivery companies
* Stainless-steel sunshield controls solar load to the box and the concrete base acts as a cooling agent
* Connected to the internet and managed via an app on your smartphone
* The Receva Smart Mailbox provides a notification when your delivery arrives
* Users can monitor the temperature of the box and battery levels via the app, and always know who has delivered into the box
* Customers can currently pre-order one for $249
* It only accepts parcels from Australia Post at present



**Figure 5:** *Receva smart mailbox* by Receva, 2017, specs of the Receva smart parcel mailbox.

**References:**

Amazon 2021, *Danby Parcel Guard - The Smart Mailbox - Wi-Fi Connected, Smart Phone Controlled, Stop Parcel Theft – DPG37G,* Amazon, viewed 2nd August 2021, <[https://www.amazon.com/product-reviews/B07WRCP8PQ/ HYPERLINK "https://www.amazon.com/product-reviews/B07WRCP8PQ/ref=acr\_dp\_hist\_3?ie=UTF8&filterByStar=three\_star&reviewerType=all\_reviews"ref HYPERLINK "https://www.amazon.com/product-reviews/B07WRCP8PQ/ref=acr\_dp\_hist\_3?ie=UTF8&filterByStar=three\_star&reviewerType=all\_reviews"=acr\_dp\_hist\_3?ie=UTF8 HYPERLINK "https://www.amazon.com/product-reviews/B07WRCP8PQ/ref=acr\_dp\_hist\_3?ie=UTF8&filterByStar=three\_star&reviewerType=all\_reviews"& HYPERLINK "https://www.amazon.com/product-reviews/B07WRCP8PQ/ref=acr\_dp\_hist\_3?ie=UTF8&filterByStar=three\_star&reviewerType=all\_reviews"filterByStar=three\_star HYPERLINK "https://www.amazon.com/product-reviews/B07WRCP8PQ/ref=acr\_dp\_hist\_3?ie=UTF8&filterByStar=three\_star&reviewerType=all\_reviews"& HYPERLINK "https://www.amazon.com/product-reviews/B07WRCP8PQ/ref=acr\_dp\_hist\_3?ie=UTF8&filterByStar=three\_star&reviewerType=all\_reviews"reviewerType=all\_reviews#reviews-filter-bar HYPERLINK "https://www.amazon.com/product-reviews/B07WRCP8PQ/ref=acr\_dp\_hist\_3?ie=UTF8&filterByStar=three\_star&reviewerType=all\_reviews">](https://www.amazon.com/product-reviews/B07WRCP8PQ/ref=acr_dp_hist_3?ie=UTF8&filterByStar=three_star&reviewerType=all_reviews)

Australia Post 2020, *Inside Australian Online shopping- 2020 Ecommerce report*, viewed 2/8/2021, <<https://auspost.com.au/content/dam/auspost_corp/media/documents/2020-ecommerce-industry-report.pdf>>

Desertcart 2021, *Desertcart Shopping Center*, Desertcart, viewed 2 August 2021, <[Desertcart Shopping Cart | Choose from 100M+ Products, 1 HYPERLINK "https://www.desertcart.com.au/cart">](https://www.desertcart.com.au/cart)

Danby parcel guard 2021, *Protect your packages and your home*, Danby parcel guard, viewed 2nd August 2021, <[https://www.danbyparcelguard.com/en-us/ HYPERLINK "https://www.danbyparcelguard.com/en-us/%3E">](https://www.danbyparcelguard.com/en-us/%3E)

Global data 2020, *Covid-19 pandemic reshaping e-commerce payments in Australia*, Global data, viewed 2/8/2021, <<https://www.globaldata.com/covid-19-pandemic-reshaping-e-commerce-payments-australia-says-globaldata/>>

Grubb B 2017, *Parcel pirate dear as Amazon arrives in Australia*, Sydney morning Harold, viewed 1/8/2021, <<https://www.smh.com.au/technology/parcel-pirate-fear-as-amazon-arrives-in-australia-20171207-h009nt.html>>

Marr, B 2021, *‘The 5 Biggest Smart Home Trend in 2020’*, *Forbes*, 13 January, viewed 10 June 2021, <<https://www.forbes.com/sites/bernardmarr/2020/01/13/the-5-biggest-smart-home-trends-in-2020)>>.

Package Butler 2021, *Package Butler Home®Locker*, Package Bulter, viewed 3 August 2021, <<https://www.packagebutler.com/>>

Receva 2017, *Receva smart mailbox*, Receva, viewed 28 July 2021, <<https://drivenxdesign.com/MEL17/project.asp?ID=15865>>