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WISCONSIN STATE SENATOR

## Testimony on Senate Bill 148

*Senate Committee on Government Operations, Technology and Consumer Protection*

April 18, 2017

Thank you, Chairman Stroebel and committee members, for holding a hearing today on Senate Bill 148. Thank you also Representative Kuglitsch for co-authoring the bill and appearing to testify.

The entrepreneurs who own and operate small businesses in Wisconsin are major drivers of our state's economy. This bill enables our Wisconsin entrepreneurs to employ an innovative solution to one of the most expensive portions of the product supply chain, while also identifying Wisconsin as the technology leader of the Midwest.

The "last mile" of delivery services poses the largest hurdle to supply chains. The closer to its destination a product moves, the more challenges are presented and the more rapidly costs accumulate. Personal Delivery Devices (PDD's) present an innovative and cost-effective solution to the last mile dilemma. This bill enables entrepreneurs to utilize PDD's in Wisconsin to expand their delivery reach while cutting down on the costliest component of delivery.

I will let the experts explain the technical details of these devices. Briefly though, PDD's are 99% autonomous devices that operate on sidewalks and crosswalks, have a 2-3 mile range, weigh less than 80 pounds, and move no faster than 10 mph. Human operators oversee the movements of each PDD and retain the ability to take control of the device at any time.

While the uses for PDD's are extensive, today entrepreneurs cannot utilize this technology. This bill provides access to the technology by authorizing PDD's to operate on sidewalks and crosswalks and by establishing standards of accountability and liability. Without this bill, Wisconsin entrepreneurs will continue to be unable to utilize this technology.

In areas across the nation, PDD's have begun to prove their worth. Pilot programs in Redwood, California and Washington, D.C., have proven their reliability and capability of navigating busy sidewalks without incident. In statehouses, authorization of PDD's have received near-unanimous support. In Virginia, authorizing legislation passed 39-0 in the Senate and 92-1 in the House, and in Idaho, the vote was 34-0 in the Senate and 65-3 in the House.

In conclusion, this bill enables entrepreneurs to utilize a forward thinking technology in the form of PDD's, and it establishes accountability for their use; all while identifying Wisconsin as the technology leader of the Midwest.

Thank you, Mr. Chairman and committee members, for your time and consideration of this bill. At this time I am happy to answer any questions from the committee.



**STARSHIP**

## **STARSHIP TECHNOLOGIES**

### **Personal Delivery Device – Fact Sheet**

- Starship Technologies is introducing an entirely new personal delivery device (“PDD”), which will transform the “last mile” of local delivery
- The company was launched by Skype co-founders Ahti Heinla and Janus Friis in 2014. The founders have successfully transformed two major industries before – the telecom industry with Skype and the record industry with KaZaA
- Starship’s PDDs:
  - Travel safely on sidewalks, delivering parcels, groceries and food to customers for approximately \$1 in 15-30 minutes
  - Are far cheaper, more efficient and use less energy than current delivery options
  - Permit customers to request deliveries when convenient to them, and track the PDD’s progress using their mobile phone in real time
  - Can carry the equivalent of 3 bags of groceries
  - Have an optimal delivery range of 2-3 miles
  - Are locked and secure during transport. The lid is opened using the customer’s mobile app
  - Operate autonomously up to 99% of the time. However, a remote human operator can assume control at any time
  - Are electrically-powered and emit zero CO<sub>2</sub>
  - Use proprietary mapping, navigation and obstacle avoidance technology
  - Operate from specially built hubs or from local businesses
  - Are low mass (less than 50 lbs. without cargo) and slow speed (4 mph)
  - Can communicate with people using inbuilt speakers and microphones
- Starship Technologies is currently engaged in commercial delivery pilot programs in the United States, United Kingdom, Germany, Switzerland, and Estonia with partners like Just Eat, Hermes, Metro Group, Swiss Post, Wolt, DoorDash, Postmates, and others offering PDD delivery in the food, grocery, and parcel industries
- Starship’s PDDs have now travelled nearly 25,000 miles in 16 countries and 59 cities, encountering over 4.2 million people



**STARSHIP**

## **STARSHIP TECHNOLOGIES**

### **Frequently Asked Questions (“FAQ”)**

**1. What are the benefits of Starship Technologies’ Personal Delivery Devices (“PDD”)?**

PDDs will revolutionize the local delivery of products for businesses and consumers. Rather than relying on car-based shopping trips or delivery trucks, PDDs offer the promise of low-cost *and* convenient delivery – all while using less energy and emitting zero CO<sub>2</sub>.

Moreover, for many consumers who are transit dependent, non-ambulatory or live in neighborhoods with limited shopping choices, PDDs represent a new and cost-effective option.

**2. How will a potential customer obtain services from a PDD?**

The process is very simple. Customers will order their items using the existing websites of their preferred restaurants, retailers, and parcel delivery companies. For participating businesses, “Starship Delivery” will be offered in the checkout area of the websites. If the customer selects “Starship Delivery” as an option, they will be notified through the Starship mobile app when their parcel is ready for delivery. The customer will then choose an exact time for delivery, and can track the movement of the PDD through Starship’s mobile app. Once the PDD arrives at its destination, the customer is notified. The customer can then retrieve their parcel by unlocking the lid of the PDD by pressing the unique ‘unlock’ button on the Starship mobile app.

**3. What types of items will a PDD deliver?**

Starship’s PDD technology has many possible applications including: (1) restaurant delivery, (2) grocery and retail delivery, and (3) parcel delivery. The nature of our partner’s business will dictate the usage of the PDDs.

**4. Are the PDDs safe for pedestrians?**

Absolutely! PDDs are low mass (approx. 50 lbs. without cargo), low speed (4 mph) devices that travel on sidewalks, using proprietary mapping, navigation and sophisticated obstacle



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avoidance technology. PDDs are equipped with nine cameras, a sensor suite, and are constantly monitored by a remote operator. PDDs are capable of identifying objects within 15 feet of their vicinity and making the necessary course corrections to avoid the object. When an object is adjacent to the PDD, but not in front of it, the PDD reduces its speed. When an object is in front of the PDD, the PDD will come to a complete stop.

Starship's PDDs have now travelled nearly 25,000 miles in 16 countries and 59 cities, encountering over 4.2 million people.

**5. Do Starship's PDDs ever exceed 4 mph?**

No.

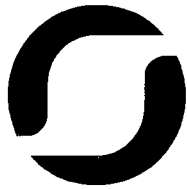
**6. How will Starship Technologies prevent PDDs from being used for unauthorized purposes and/or from being vandalized?**

The cargo bay of each PDD is locked and secured during transport. Only individuals, who are known to the company, will be able to receive, open, and return PDDs with the use of their mobile technology. As mentioned above, PDDs are constantly monitored and equipped with nine cameras and two-way audio communication systems. Any improper conduct will be detected immediately.

Moreover, because consumers will decide when to have their packages delivered, PDDs will substantially reduce incidents of stolen packages. According to a December 2015 study by insuranceQuotes.com, an astounding 23 million Americans have had packages stolen from their homes following a traditional delivery.

**7. Will PDD deliveries be affordable?**

Once fully scaled, the company expects PDD deliveries to cost the consumer less than \$1 per delivery, which is a fraction of the cost of alternatives.



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### **8. How does Starship protect customer information and the privacy of the general public?**

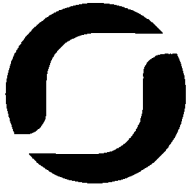
Starship never shares customer information and does not store such information on its PDDs. Although the PDDs are equipped with 9 cameras, Starship minimizes the amount of information that it collects. First, when the PDD is operated by a human operator, the images are transmitted exclusively via a lower resolution feed, which is further obfuscated to conceal individual identities. Second, high resolution images, which are collected while the PDD is in autonomous mode, generally remain on the PDD for a very short duration and are then discarded. There are two exceptions: (i) safety and security, e.g. emergencies, vandalism, etc. and (ii) PDD system improvement, e.g. machine learning. In both instance, the information is transmitted in an encrypted form to Starship, where it resides on a segregated system with restricted employee access. Starship maintains an audit trail of those employees who review these images and the reasons for this review. In all cases, the images stored are brief snapshots and human images are obfuscated, except those involved in safety or security matters.

### **9. What is the anticipated impact of PDDs on existing employment in the delivery business?**

In 2016, online sales in the U.S. totaled \$394.9 billion, a 15.1 percent increase over 2015. At the same time, the demand for package delivery services is growing exponentially. The company anticipates that PDDs will supplement the growing logistics industry and offer additional employment opportunities associated with managing and maintaining the PDDs. In addition, the company expects that most PDD deliveries will simply supplant individual car-based shopping trips and, therefore, have only a positive impact on employment.

### **10. When can a community expect to receive services from PDDs?**

Starship Technologies is currently engaged in commercial delivery pilot programs in the United States, United Kingdom, Germany, Switzerland, and Estonia with partners like Just Eat (food delivery), Hermes (package delivery), Metro Group (retail), Swiss Post (Swiss postal system), Wolt (food delivery), DoorDash (food delivery), Postmates (food delivery), and others offering PDD delivery in the food, grocery, and parcel industries.



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The company is constantly exploring additional opportunities and expects to continue its rapid expansion in jurisdictions with accommodating legal and regulatory frameworks.

**11. Are there other companies engaged in the development and use of personal delivery devices?**

Yes. There are other technology companies developing and deploying ground-based personal delivery devices, including Dispatch and Marble.

**12. Will the legislation, which is before this legislature, permit competition?**

Yes. Starship's current devices weigh approximately 50 lbs. and travel at approximately 4 mph. The legislation permits any device to operate in our state, provided the device weight less than 80 lbs. and travel at 10 mph or less. These limitations, and those included in the legislation, are intended to permit the growth of the technology and at the same time establish minimum safety parameters.

**13. How does Starship prevent the PDDs from being used for improper purposes?**

Starship's PDDs are always under the control of a Starship PDD operator. Starship's PDDs cannot be used without the consent and knowledge of the company. In fact, only businesses, which have a contractual relationship with Starship, will be able to offer PDD services. Importantly, even these businesses have no operational control over the PDDs.

In practice, the following is a description of how Starship maintains control over its PDDs. Initially, Starship enters into a contract with a business partner to locate a certain number of PDDs at the business. The business then offers Starship as a "delivery option" for its customers when the customer "checks out" online. If Starship is selected, the business's employees will load the PDD with the customer's item(s). The PDD will then be dispatched to arrive at the customer's home at the time requested. At all times, the point of origin and destination of the device is known, as are the individual(s) sending and requesting the PDDs, which are locked during transit. Starship's software and PDD operators guide the devices – no one else!



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Individuals will not “own” or “control” their own PDD. As such, individuals will not be able to send the PDD to any destination other than that of Starship’s business partner. In fact, this process is activated automatically after the customer retrieves his or her item(s) from the PDD.

### **14. Where is Starship Technologies currently operating?**

In addition to the UK, Germany, Switzerland and Estonia, Starship Technologies is operating in Washington, DC, Redwood City, California and Fayetteville, Arkansas.

On February 24, 2017, Virginia approved a statute permitting the use of PDDs in the Commonwealth. In addition, on March 24, 2017, the State of Idaho approved a similar statute. Finally, Starship is currently seeking statewide legislative authorization in Florida, Wisconsin, Ohio and Massachusetts.