# Legal Analysis

**Year:** 2018 **Semester:** Fall **Team:** 6 **Project:** Garbage Collecting Boat
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**Author:** Qianli Ma **Email:** ma160@purdue.edu

**Assignment Evaluation:**

| Item | Score (0-5) | Weight | Points | Notes |
|---|---|---|---|---|
| **Assignment-Specific Items** | | | | |
| **Regulatory Analysis** | | x3 | | |
| **Analysis of Patent 1** | | x3 | | |
| **Analysis of Patent 2** | | x3 | | |
| **Analysis of Patent 3** | | x3 | | |
| **Writing-Specific Items** | | | | |
| **Spelling and Grammar** | | x2 | | |
| **Formatting and Citations** | | x1 | | |
| **Figures and Graphs** | | x2 | | |
| **Technical Writing Style** | | x3 | | |
| **Total Score** | | | | |

**5: Excellent 4: Good 3: Acceptable 2: Poor 1: Very Poor 0: Not attempted**

**Comments:**
*Comments from the grader will be inserted here.*

## 1.0 Regulatory Analysis

To ensure that the Garbage Collecting Boat is marketable in the United States, the FCC technical standard must be met as an unintentional radiator. Since the project does not aim to the European market currently, the ROHS standards do not need to be met for the project boat. There is enough market value in the United States and other parts of the world excluding EU.

Since the project boat's microprocessor operates at 8 MHz, which falls under the category of unintentional radiators operating above 9 KHz frequency, the project boat must be compliant with the FCC standard to operate in the United States. The project boat will be categorized as Class B because the product will be used commercially and privately, and the devices on the project boat are susceptible to be manipulated by other sources. To be authorized and approved by the FCC, all digital devices should pass the tests conducted by the FCC with FCC standards before available to the public. The detailed measuring of the project boat for the operating frequencies would then be verified by the FCC to approve the project.

The boat will not emit radio noise emissions to the surrounding where the project boat works on. Furthermore, the on-boat Wifi-LTE module transmission signal is being pre-approved by the FCC since LTE became a commercial-use product years ago in the United States. To make the prototype boat into a marketable final product, the team will test the frequency outputs from the microprocessor PCB. If any unexpected noise was detected, the team would take actions to eliminate them so that the noise would not be an issue for the FCC testing.

## 2.0 Legal Liability Analysis

### 2.1 Patent #1: United States Patent US 20170137224 A1[1]:

**Patent Title:** "Conveyor system for conveying material to be conveyed"
**Patent Holder:** Menke; Lucas (Munich, DE), Englisch; Klaus (Koenigsbrunn, DE)
**Patent Filing Date:** May 29, 2015

**Abstract:**
The invention relates to a conveyor system for conveying at least one material to be conveyed, comprising a continuously circulating conveyor, at least one transponder, arranged on or in the conveyor, and at least one communication device for wirelessly transmitting data to the transponder and/or for wirelessly reading data saved in the transponder, said conveyor being a pocket conveyor belt. The conveyor preferably comprises a plurality of transponders arranged at regular intervals, wherein the data transmitted to the individual transponders preferably relates to information about a defined section of the conveyor, such as information relating to the type and/or amount of the material to be conveyed in a section of the conveyor assigned to the respective transponder.

**The key claims which the inventors put forth are:**

1. A conveyor system for conveying at least one conveyed product, comprising a continuously revolving conveyor, with the conveyor being a pocket conveyor belt.

2. The conveyor system in accordance with claim 1, wherein each loading region of the conveyor system has at least one communication device
3. The conveyor system in accordance with claim 1, wherein a section is only released for the loading with a specific conveyed product or with a conveyed product from a group of specific conveyed products with reference to the data stored on the at least one transponder.

This patent performed in a similar way in using conveyor belt. They use pocket conveyor belt in the supply line for assembly or other purposes. However, one main claim they have is to use some communication device to monitor the function of a belt or any information related to the material on the belt. Our project largely differs from this claim of the patent since we only do convey without transponder data at all.

On the other way, the purpose of using a conveyor belt is different. The product of the patent is mostly used in an assembly line in a factory, while our conveyor belt is used in the field to collect garbage. Despite we use the same tool in the same way, we can confidently state that there is no infringement on the given patent.

**2.2 Patent #2: US Patent Application US 20180171571 A1[3]**
**Patent Title:** "SYSTEM FOR AERATION AND SEPARATION OF CONTAMINANTS FROM FLOWING WATER "
**Patent Holder:** LADKAT; Rajendra Vithal; (Pune, IN)
**Patent Filing Date:** June 21st, 2018

**Abstract:**
A system for aeration and separation of the contaminant from flowing water is disclosed wherein a contaminated water travel through up and down flooring and diverted its path frequently by the means of a baffle to aerate and increase travel distance in particular channel. The sink between last baffle and partition wall collect contaminant and sliding mesh above wall collect the plastic, metallic, paper and weed. Water plants in H block baffle groove with pebbles & soil removes toxic gases in flowing water.

**The key claims which the inventors put forth are:**
1. A separation system that sorts and collects contaminants from the water uses the method of baffling and increasing distance in inner-channel.
2. The separation system in accordance with claim 1, wherein the baffle and partition wall work together to collect and slide mesh to collect trashes.
3. The separation system in accordance with claim 1, wherein the block baffle contains water plants and pebbles/soils to remove toxic gases in the water.

The patent utilizes a different method in collecting trashes from the water surface. The patent uses aeration and separation to sort and separate the contaminants from the water with means of sliding the contaminants up the wall.

Our project differs in the method of collecting garbage with this patent since our project utilizes

a conveyor belt to collect the contaminants instead of using a sink between the baffle and partition wall. Also, our project does not have the feature of removing toxic gases in flowing water.

**2.3 Patent #3: US Patent Application US 20100185342 A1[4]**
**Patent Title:** "Autonomous Water Craft "
**Patent Holder:** Wubker, Jr.; Roy H;
**Patent Filing Date:** July 22nd, 2010

**Abstract:**
The present invention is a control module which can communicate with an autopilot control system of a marine vessel and enable an individual or other devices to remotely control the marine vessel. The control module can communicate wirelessly with a laptop computer, a PDA, a computer connected to the Internet or other types of control devices which are capable of controlling a marine vessel. The control module can also be in communication with preprogrammed navigation software which communicates with and operates an onboard marine autopilot system. A satellite phone can also transmit navigation commands to the control module via a sat com communication modem connected to the control module.

**The key claims which the inventors put forth are:**

1. The main control system consists with an embedded microcontroller which controls the communication with the wireless communication input signal. The wireless communication signal input includes a line of sight communication modem, a satellite communication modem or a communication gateway.
2. The embedded system with microcontroller could be communicated with various types of computer platforms including personal computers and digital assistants.
3. The system equipped with a large storage device which serves as data storing unit for communication between the embedded system microcontroller and computer system.

The patent mainly focuses on any marine auto navigation vessel with a device of remote control. In an aspect of the way that we used to control the boat, they are exactly same, because, in the patent, it includes basically all the method to do remote control, like communication gateway, line of sight communication modem, and satellite communication modem. Our TCP protocol is a gateway communication. However, the major difference is the subject and the environment we target on. The patent is focusing on a vessel operating on marine, but our boat is much smaller in size and operates in a lake or pond, which serves a totally different purpose. Despite we use the same remote communication way, we can confidently state that there is no infringement on the given patent.

**3.0 Sources Cited:**

[1] Conveyor system for conveying material to be conveyed. *US Patent & Trademark Office, Patent Full Text and Image Database.* [Online]. Available: http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=%2Fnetahtml%2FPTO%2Fsearch-bool.html&r=35&f=G&l=50&co1=AND&d=PTXT&s1=%22conveyor+belt%22&OS=%22conveyor+belt%22&RS=%22conveyor+belt%22. [Accessed: 26-Oct-2018].

[2] "APPARATUS FOR COLLECTING GARBAGE AND DEBRIS FOR A MOTOR-SWEEPER," *US Patent and Trademark Office,* [Online]. Available: http://appft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&u=%2Fnetahtml%2FPTO%2Fsearch-adv.html&r=18&f=G&l=50&d=PG01&s1=%22garbage+collecting%22&p=1&OS=%22omni+cat%22&RS=%22garbage+collecting%22#top. [Accessed: 26-Oct-2018].

[3] "SYSTEM FOR AERATION AND SEPERATION OF CONTAMINANTS FROM FLOWING WATER, " *US Patent and Trademark Office,* [Online]. Available: http://appft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&u=%2Fnetahtml%2FPTO%2Fsearch-adv.html&r=1&f=G&l=50&d=PG01&p=1&S1=%22river+cleaning%22&OS=%22river+cleaning%22&RS=%22river+cleaning%22. [Accessed: 26-Oct-2018].

[4] "Autonomous Water Craft," *US Patent and Trademark Office,* [Online]. Available: http://appft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&u=%2Fnetahtml%2FPTO%2Fsearch-adv.html&r=7&f=G&l=50&d=PG01&p=1&S1=%22remote+boat%22&OS=%22remote+boat%22&RS=%22remote+boat%22. [Accessed: 26-Oct-2018].