# 2nd Weekly Report

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To: include all managers (e.g., ematson@purdue.edu, ahsmith@purdue.edu, lhiday@purdue.edu and lee3450@purdue.edu)
From: GO duck


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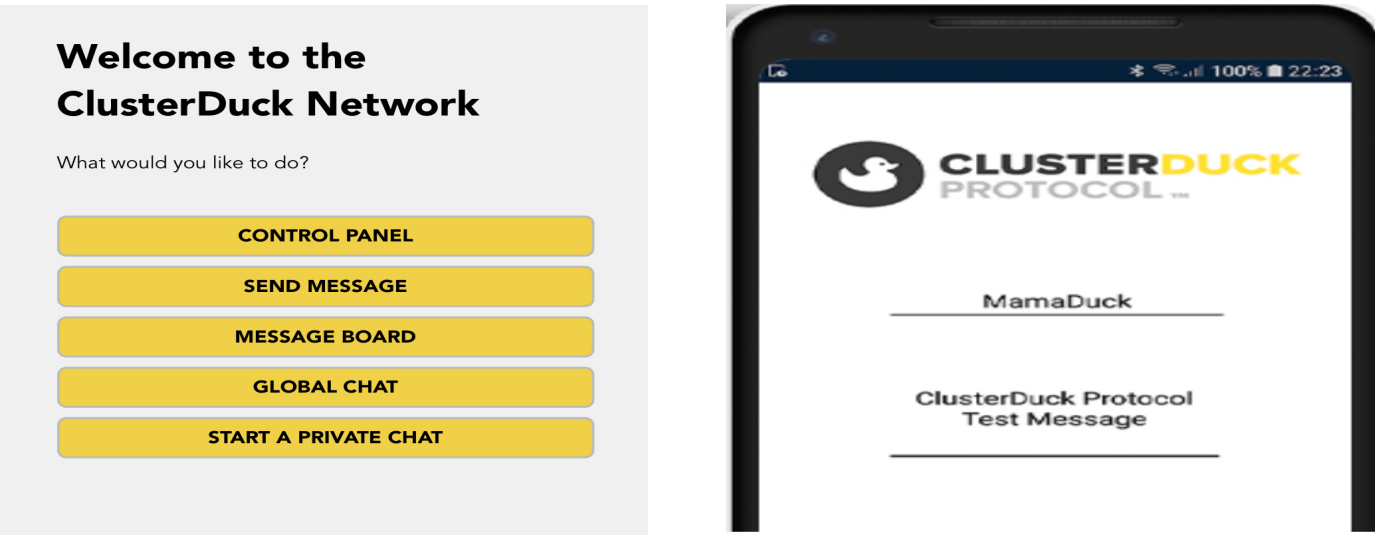
## 1 Summary


- Tested a simple text communication between two MamaDucks on Jan 17.
- ClusterDuck: Tried setting up DuckLink, DectectorLink, and GPS on Jan 18.
- First draft: Wrote the introduction chapter but needs more paraphrasing.
- Summarized related research papers to support our paper.
- GPS: Attached a GPS module with an external antenna to a MamaDuck, successfully received accurate location data.


## 2 What GO duck completed this week

- Set up two MamaDucks. A MamaDuck acts as a network node, and provides a captive web portal over WiFi connections which can be connected with a smartphone or laptop without the need of downloading any software. Once connected, a simple interface window pops up, showing menu buttons such as control panel, send message, message board, global chat, and start a private chat as depicted in Figure 1(a). At least two MamaDucks are required to send and receive messages. After setting up two MamaDucks, successfully sent messages through a private and a global chat.




(a) ClusterDuck Web Interface (b) DuckApp

Figure 1: ClusterDuck UIs

- There was a problem with MacOS when compiling with Arduino IDE.
  Trouble:

  ```
  exec: "python": executable file not found in $PATH
  ```

  - MacOS requires "python3" instead of "python".

  Solution:
  1. Go to the terminal.
  2. Type /.bash_profile.
  3. Write "alias python=/usr/bin/python3" and save.

- Began writing a first draft for the introduction chapter for the paper. Have been summarizing related research papers, condensed those into the introduction. However, it requires more paraphrasing to avoid plagiarism.

- Younguk has gained a good grasp of goTenna and ClusterDuck.

- Tested GPS module and communication between two Mamaducks. The GPS module needed an external antenna. To attach a high performance GPS anttena, soldered a SMA antenna connector to the GPS module. Successfully received accurate location data with the antenna.

# 3 Things to do by next week

- To set up weekly meeting with Prof. Smith (goTenna equipment need to arrive in onder to materialize ideas for the testing protocol) and Minji Lee.

- To write down keywords and phrases for the title in IEEE format.
- To test and examine goTenna's capabilities in different locations.
- To ping between two devices to check the delays.
- To set up a local server on a Raspberry Pi. DMS (Data Management System) LITE is built to collect data from the ClusterDuck Protocol and provide simple data management, analytics, and network activity. DMS LITE is distributed as a docker. Need to configure docker environment on the Raspberry Pi. A Papaduck will act as a gateway to the server via serial connection.
- To assign a clear and manageable role to each member on Monday.

# 4 Problems or challenges

- A potential OS compatibility issue between MacOS and Windows. Appears as if one device compiled from Windows does not seem to be able to communicate with one from MacOS. Needs further investigation.
- Unable to check GPS location data through the communication between Mamaducks. A Papaduck is able to capture the GPS data. Need to check Mamaduck's capability in this regard.