IPPA Package Interface for Bluetooth Communication

# Types:

* PackageName - Description => data transfered
* A - Trigger a gesture => gesture id
* B - Update the position of each finger => 5 position values
* C - Send a new gesture to the arm => full gesture info
* D - Delete existing gesture => gesture id
* E - Temporary store of a gesture (demo) and trigger => full gesture info
* F - Request command strings stored in the arm => NA
* G - Switch modes => NA
* H - Send voice commands => variable number of strings
* I - All gestures stored in the arm => variable number of full gestures

## General Package Structure

Each piece of data in the package will be separated by a “.” (period). This allows for empty spacing within string objects. The package must be finished with a period as well.

## Type A

First character is A.

The data is just an int with the position (in gesture array in the arm) for the main controller to trigger that gesture.

## Type B

First character is B.

The data is the position of the 5 fingers to which the arm needs to be changed to (main controller passes this new values to the servo controller for update of the hand). This must seem as in real time. The position is given by and int. The servo values range from (0° - 180°).

## Type C

First character is C.

The data will contain everything needed to “make” a gesture. The data is in the following order:

1. Offset (index) for the location of the gesture within the arm
2. Start position (5 fingers) (int values)
3. End position (5 fingers) (int values)
4. Voice command associated with this gesture (string with max length of 15 characters)
5. Pressure allowed (3 possible values: Light, Medium, High)

## Type D

First character is D.

The data is just an int with the position (in gesture array in the arm) for the main controller to delete the present gesture.

## Type E

First character is E.

The main controller is expected to trigger this gesture after it temporarily stores it. The data will contain everything needed to “make” a gesture. The data is in the following order:

1. Offset (index) for the location of the gesture within the arm
2. Start position (5 fingers) (int values)
3. End position (5 fingers) (int values)
4. Voice command associated with this gesture (string with max length of 15 characters)
5. Pressure allowed (3 possible values: Light, Medium, High)

## Type F

The only character sent is F.

No data is sent with this package. The main controller is expected to respond with a package of type H.

## Type G

First character is G.

No data is sent with this package. The main controller is expected to switch from the current mode to the other mode (from Teaching to Autonomous, or from Autonomous to Teaching).

## Type H

First character is H.

The data is sent from the IPPA to the mobile device. The first piece of data must be an integer, representing the number of gestures in the arm. The rest it’s a list of strings: the voice command set for each gesture stored in the arm. This will be used for the voice command triggering.

## Type I

First character is I.

The data is sent from the IPPA to the mobile device. The first piece of data must be an integer, representing the number of gestures in the arm. The data will contain multiple full gestures. Each gesture is in the following order:

1. Offset (index) for the location of the gesture within the arm
2. Start position (5 fingers) (int values)
3. End position (5 fingers) (int values)
4. Voice command associated with this gesture (string with max length of 15 characters)
5. Pressure allowed (3 possible values: Light, Medium, High)