MIS 284N: PROJECT MILESTONE 3

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(1) Briefly (one paragraph or so) describe your selected final milestone. Why did you choose it?

We were exploring different projects that one could do with a microbit and found a lot of suggestions around games. So we decided to build a digital version of the traditional two-player Rock Paper Scissors game. Each player has to choose between three options - Rock, Paper or Scissors and the winner is decided as per the following rules:

- Rock beats scissors
- Scissors beats paper
- Paper beats rock

For our implementation, we hosted the broker on Raspberry Pi and established connection with two clients i.e. Player 1 (using the microbit) and Player 2 (using the Android phone). Player 1 presses button A to choose “Rock”, button B to choose “Paper” and shakes it to choose “Scissors”. Player 2 has 3 buttons on the Android app UI appropriately named - Rock, Paper and scissors, to help make similar selections. On receiving response from both players, Raspberry Pi compares them and displays the winner on the terminal, along with scoreboard (player-wise win statistics). Raspberry Pi also publishes this winner information to Android client, which in turn, can broadcast this information via email to any recipient of choice. The Android client would have to switch from Raspberry Pi’s network to Internet to run this feature.

(3) State what you believe is the most significant remaining limitation of your entire system. (Please choose something other than the microbit’s (in)ability to accurately count steps.) What are the ramifications of this limitation? Give at least two ideas that you might try to use to overcome the limitation were you to continue the project.

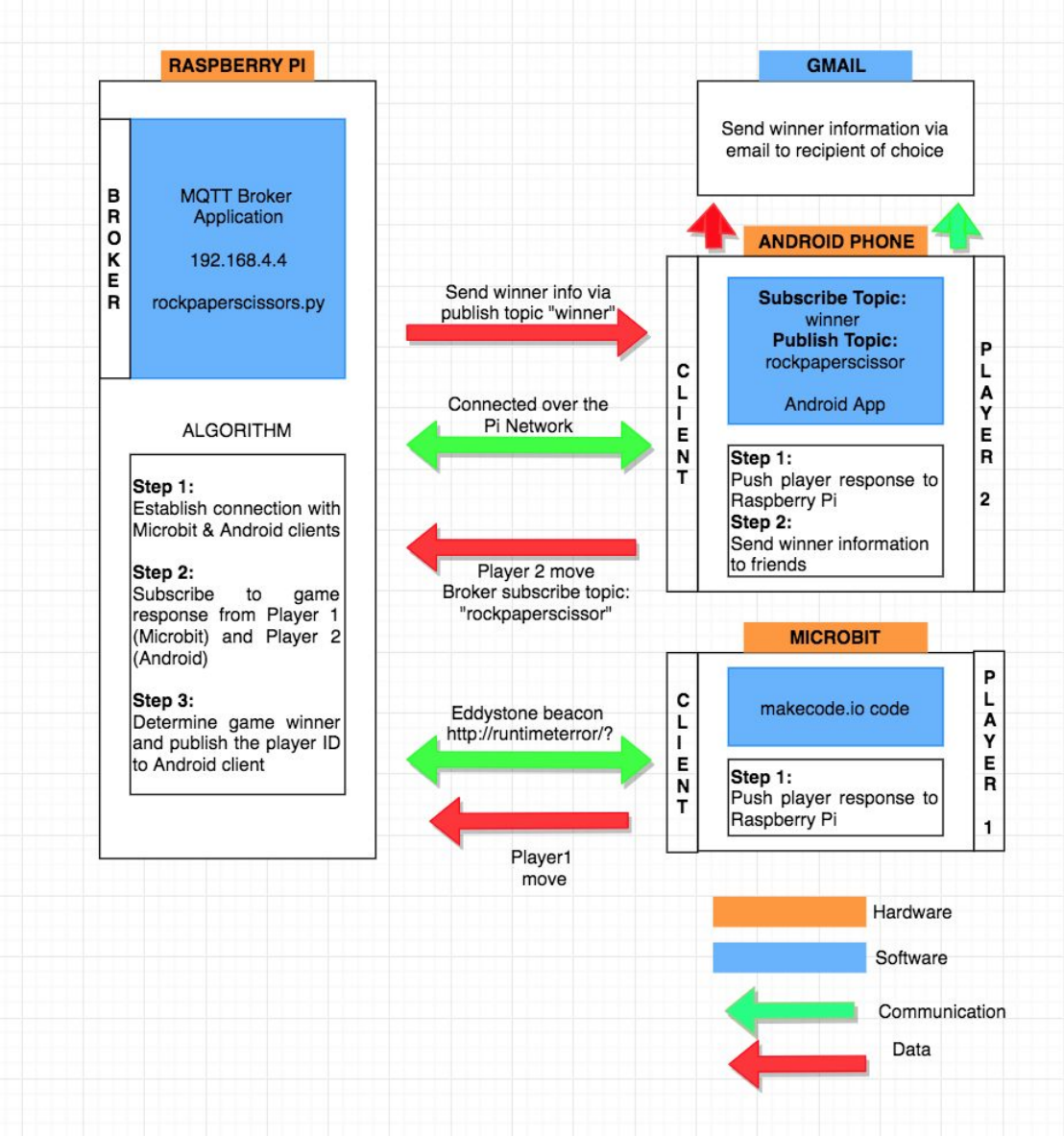
Limitation: In the current implementation, player 1 (using the microbit) does not receive any kind of feedback from Raspberry Pi on the game outcome.

Ramification: Player 1 gets no information in real-time regarding their current or past performance. They are dependent on Raspberry Pi terminal to know this outcome which is not an exciting user experience for gamers. Player 2 on the other hand gets this information on their device itself.

Idea1: Setup bi-directional communication channel between Raspberry Pi & microbit so that the winner info could be flashed on the microbit LED’s

Idea 2: Make Android phone play different tunes to convey winner. Tune 1 if Player 1 wins, else play Tune 2. This way the winner information is broadcasted to both players at the same time.

(2) Draw a block architecture diagram that depicts your entire system. Consider depicting hardware, software, algorithms, data, and communication. Be sure to clearly include your final milestone.



(4) Did you rely on any external sources to complete your milestone? If so, cite them.

Rock Paper Scissors. (n.d.). Retrieved December 9, 2019, from https://makecode.microbit.org/projects/rock-paper-scissors.