Team B0
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<center>Statement of Work</center>

Tasks

The storytelling algorithm will be built as planned. However, we will no longer adhere to the latency requirement because we are unsure if we will be able to optimize integration. In addition, we will only aim to get the algorithm working on a laptop, not even considering an Nvidia Jetson Nano, to eliminate the need to use hardware while developing the algorithm. For the algorithm itself, we will only use basic parts of speech (noun, verb, adjective, etc) for user input for the mvp. Ashika will still handle the storytelling algorithm.

The audio input/output component will also be created mostly as planned, once again eliminating the latency requirement. We are not sure whether we will have both an online and offline mode, as that is low priority compared to being able to get a working and integrated project. We are currently prototyping on two Raspberry Pi's so that we can work separately on displays/robot movement and speech processing/TTS, however we want our final product to only incorporate one Raspberry Pi. To achieve this we will need to create documents on how to install all necessary software packages for speech processing and text to speech. We will still be writing our own pitch shifting algorithm and if it takes too long to run we will be using a built in package. Abha will be working on building the robot and Jade will be working on the audio processing. Because they will be in separate locations we will need to have two sets of audio components. In terms of hardware, we will need to buy another audio sound card, another set of speakers and another microphone so that Jade can prototype and Abha can build the robot.

Since the robotics aspect of the project requires a significant amount of access to makerspaces (3d-printers, laser cutters, etc), we need to majorly rethink this part. Since Techspark is closed, we will make a robot from household materials, such cardboard, clay, and wood. We are a little concerned if cardboard will be able to support the weight but we will look into ways to smartly design our robot and find ways to reinforce the cardboard with wood. Our backup plan is to make an app or a website, and remove the hardware components, if we are having significant issues with this aspect of the project. Abha will still be working on the robot.

Metrics

We will still try to meet subsystem metrics including: part of speech error detection, synonym recall and speech processing accuracy. We will be removing our system latency requirement because we want to focus our time on integration. In addition, we anticipate more issues with creating the robot, so we will be making power requirements a stretch goal in order to prioritize creating the robot.

Story Cohesion

We will still create the rubrics with the five narrative cohesion variables and contact users over Zoom. We will test the stories without the hardware components (just running the python program and typing in the user input) and ask users to create stories and graders to rate the three types of stories. This is more or less exactly as we planned in the original design report, just with video calls instead of actual robot interaction.

User Satisfaction

Assuming integration works, Abha will try to find friends and family that can interact with the finished robot. Since we are eliminating our latency requirement, the robot might not be as enjoyable to use. We have no expectations of what the user satisfaction will be at this moment, because we are unsure how long the latency will be, what the robot will look like, and if there will be bias when asking family and friends to interact with KATbot, so we will determine the score goals later.