SIGHT Project: Meeting 04 Minutes

Date: August 15, 2025
Time: 11:00 AM - 11:51 AM
Location: Zoom
Slides: https://fmegahed.github.io/sight/presentations/meeting04/meeting04.html

Attendees

- **Miami University (MU):** Fadel Megahed (PI), Arthur Carvalho (Co-PI), Jay Shan (Co-PI), Reza Abrisham Baf (SP), Ibrahim Yousif (Post Doc), Michael Wise (Graduate Research Assistant), Mohamed Farrag (PM), Paula Murray (Office of Research), Maressa Dixon (Evaluator), Yue Li (Evaluator), Kristen Morio (Evaluator)
- **MaxByte:** Ramshankar C S (CEO), Harish Chittaluri (Tech Lead)
- **MeetKai:** Kevin Bresnahan (VP Business Development), Vincent Cheong (Software Engineer), Declan Li-Carney (Software Engineer)

Agenda Items

1. Recap and Approval of Meeting 03 Minutes.
2. Project Technical and Administrative Updates.
3. Open Discussion.
4. Next Steps and Wrap-Up.

Discussion Summary

1. Recap and Approval of Minutes (Fadel Megahed)

- F. Megahed opened the meeting by reviewing the plan for the day, which includes administrative updates, technical progress reports, and an internal session for the MU team.
- The minutes from the August 1 meeting, which were circulated on August 14, were presented for approval.
- No objections or corrections were raised by the team. The minutes for Meeting 03 were approved.

2. Administrative Updates (Fadel Megahed)

- **BWC Submissions & Approvals:**
  - A comprehensive 67-page Internal Control Questionnaire (ICQ) detailing Miami University's financial and operational processes was compiled and submitted to the BWC. F. Megahed extended thanks to Paula Murray for her significant contributions

to this document.
    - Contracts for industry partners MaxByte and MeetKai have been fully executed and were submitted to the BWC on August 14. The consultant's contract was withheld based on BWC's advice to only submit required documents.
    - Deliverables 1.1 and 2.1 have been officially approved by the BWC. This approval enables the release of approximately 4% of the project's budget, around $60,000, once the first quarterly expenditure report is approved.
    - P. Murray will serve as the point of contact for expenditure reports and will attend a BWC office hours session to ensure compliance.
- **Attendance and Reporting:**
    - For future meetings, attendance will be recorded using Zoom's participant list to satisfy BWC reporting requirements. All attendees, including those in a shared room, are requested to log in.
    - A consolidated attendance record for the July 18 meeting was compiled from multiple sources (manual sign-in, Google Form, Zoom) and submitted as part of Deliverable 4.2.

3. Technical Updates

- **Chatbot Advancements (Fadel Megahed & Arthur Carvalho):**
    - A. Carvalho provided a high-level explanation of Retrieval-Augmented Generation (RAG) for non-technical team members, describing it as a process of slicing documents into chunks and retrieving the most relevant ones to answer a user's question. He outlined several RAG strategies the team is exploring, including vanilla vector search, hybrid keyword search (BM25), re-ranking, and graph-based retrieval, all aimed at balancing accuracy and latency.
    - F. Megahed presented the latest chatbot developments:
        - **Vision Capabilities:** A vision model (GPT-5) has been integrated, allowing users to upload an image and ask safety-related questions. A demo showed the model identifying the number of workers in a photo, noting the absence of PPE, and flagging potential trip hazards, while also referencing relevant OSHA standards.
        - **Voice Integration:** A speech-to-speech feature using GPT-40-voice has been added, enabling users to ask questions verbally and receive spoken answers. This functionality is seen as crucial for future AR and VR applications and ADA compliance.
    - **Future Chatbot Plans & Evaluation:**
        - The knowledge base will be expanded to include machine-specific documents like OEM manuals, maintenance records, and detailed Lockout/Tagout (LOTO) procedures.
        - The team discussed the importance of evaluation. J. Shan noted that latency will be a critical factor, especially for real-time AR, which may require different model deployment strategies (e.g., edge devices).
        - A. Carvalho stressed the need to develop a benchmark dataset with curated questions and "gold standard" answers to quantitatively measure the accuracy of

different models and RAG approaches.

- **VR Integration Needs (Ibrahim Yousif & MeetKai):**
  - I. Yousif reported on his progress in creating 3D models for the VR environment. He is developing a pipeline that can build a model from images if a CAD file is unavailable and has acquired a HoloLens 2 headset to begin AR development.
  - He shared a video from his previous work demonstrating how VR can be used to display real-time maintenance data and diagnostics on complex machinery.
  - A discussion with the MeetKai team focused on optimizing 3D models for VR. Declan from MeetKai advised that models require different levels of detail (LODs) depending on the user's proximity. He confirmed that having separate models for the machine's exterior and its internal components would be highly beneficial for performance.
- **MaxByte IIoT Integration (Harish Chittaluri):**
  - H. Chittaluri provided an update from his recent visit to the MU Hamilton campus.
  - He assessed the lab equipment and gathered initial requirements for IIoT integration, including Modbus and IP address specifications.
  - A key need is obtaining OEM documentation to determine where sensors can be placed without affecting machine warranties or operations.
  - R. Abrisham Baf requested that the Hamilton campus team be included in future communications to provide support.

4. Open Discussion

- **Industry Partner Update:**
  - The team discussed the need to find a replacement for Cincinnati Radiator. F. Megahed reported that Ram (MaxByte) has initiated contact with a potential company in Columbus.
  - R. Abrisham Baf suggested Clippard, a local manufacturing company with a strong existing partnership with the university, as another excellent candidate.
  - F. Megahed reiterated the partner's role, which includes providing a safety professional for feedback and helping to recruit 40 workers for the VR/AR evaluation studies. The proximity of a local partner would be highly advantageous for participant recruitment.

Action Items

Who	What	Due Date
Ibrahim Yousif / Vincent Cheong & Declan (MeetKai)	Schedule a follow-up meeting to define the technical pipeline and specifications for converting CAD files into	August 29, 2025

	VR-ready 3D models.	
Harish Chittaluri / Reza Abrisham Baf	Work with MU team to obtain OEM documentation for lab equipment to identify safe sensor placement locations.	August 29, 2025
Ramshankar C S / Reza Abrisham Baf / Fadel M.	Continue efforts to secure a new industry partner to participate in the project.	September 12, 2025
MU Team	Finalize the draft of the Project Management Plan for submission to the BWC.	August 29, 2025
Fadel Megahed / Arthur Carvalho	Share the public access link to the hosted chatbot with the team once deployed on university servers.	August 23, 2025

The general meeting adjourned at 11:51 AM.

Next Meeting: To be confirmed via email.